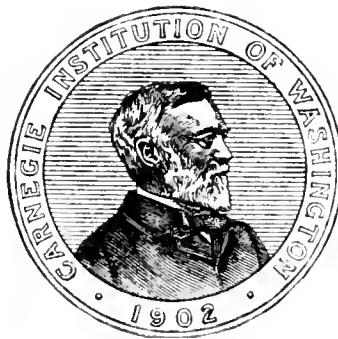


REPORTS
UPON
THE PRESENT CONDITION AND FUTURE NEEDS
OF THE SCIENCE OF ANTHROPOLOGY

PRESENTED BY
W. H. R. RIVERS, A. E. JENKS, AND S. G. MORLEY

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REPORT
ON
ANTHROPOLOGICAL RESEARCH OUTSIDE AMERICA

BY W. H. R. RIVERS

Fellow of St. John's College, Cambridge

REPORT ON ANTHROPOLOGICAL RESEARCH OUTSIDE AMERICA.

The object of this report is to consider which part of the world outside America presents the most favorable opportunities for anthropological investigation and the kind of inquiry from which the most valuable results may be anticipated. In considering these matters I propose to lay especial stress on a feature which serves to differentiate anthropology from other sciences, viz., the special urgency of its needs due to the character of its material. The importance of this distinction is so great that it may be dwelt upon for a moment. In the sciences dealing with inorganic matter and with living creatures other than man, the phenomena which form their subject-matter are stable. The decision of a chemist whether he will use the present moment to attempt the synthesis of a substance is not influenced by the probability, much less the certainty, that in a few years the materials for the synthesis will have wholly disappeared. It is only in certain departments of systematic biology that there is any serious loss and change of the material with which science deals. With this exception the evidence now present will be equally available a hundred or a thousand years hence. This factor of urgency, wholly or almost without importance in other branches of science, is one from which the anthropologist can never escape, and it is of such vital importance that I have no hesitation in using it as my chief guide in this report.

The aim of anthropology is to teach us the history of mankind, of his physical structure, mind, social organization, language, morals, religion, and the useful and æsthetic arts. Taken in the widest sense, it would include history in so far as it can be studied through written records; but it is customary to limit the application of the term by reserving the study of such records as belonging to the domain of history in the narrower sense and to restrict anthropology to the study of the evidence preserved in the unwritten records of the past and of the present—and the distinction of past and present forms the dividing line between the two chief departments of anthropology, viz., archæology and ethnology.

I begin by considering how these two chief departments of anthropology stand with respect to their urgency. It is only very exceptionally that the investigation of archæological problems can be said to be urgent. Relics of human culture, whether they be the rude workmanship of palæolithic man or the highly elaborate work of Greek or Roman, which have lain under the surface of the earth for times varying from two to twenty thousand years, are not likely to suffer any material change if they are left undisturbed for

another century or two. It is only in places such as Egypt, where the buried objects have a great intrinsic value and are thus likely to be the prey of pillagers and amateurs, that the question of urgency arises. Indeed it is possible to go still further; science will gain by delay. No one who compares a recent exploration of a Pompeian house or an Egyptian tomb with one of only ten or twenty years ago can fail to see how great has been the positive gain for exact knowledge through the delay. Archaeology is a relatively young subject and it is only now that its students are beginning to recognize the need for attention to minute detail and for the systematic record of features and aspects of ancient remains which may seem trivial to us now, but in a more advanced state of knowledge may become of priceless importance. Looking at the subject, not from the narrow point of view of our own scientific and historical curiosity, but from that of the future, I believe science will gain in the long run by delay of archaeological exploration.

How different is the case with ethnology! Here we have material, much of it indeed hidden from the ordinary gaze, but yet open to all the influences now being brought to bear upon it by the rapid spread of western culture over the earth's surface. In many parts of the world the customs of savage and barbarous man are undergoing rapid and destructive change. Even now in many places all religious ceremonies may have disappeared, all the old arts may be neglected, even the niceties of language may be blurred or lost. The brightest side of the matter is the extent and fidelity of the memories of ancient times. Nearly everywhere, among rude peoples whose culture is vanishing, there are to be found old men, often more alert and mentally vigorous than their juniors, who seem to be inspired by a fervor fit to be called religious, as it is found how closely and exactly they have preserved in their memories the minute details of rites and customs which they have had no opportunity of practising for years. Such old men have only to meet one in whom they recognize an interest akin to their own to become fountains of knowledge which seem almost inexhaustible, and yet each case of this kind only brings more forcibly to the mind how great will be the loss when these fountains have been dried by the inevitable consequences of a few years' delay. In many parts of the world the death of every old man brings with it the loss of knowledge never to be replaced.

The fact that the material of the ethnologist is not stationary, but is continually undergoing change, raises another practical problem. If the material for knowledge is thus undergoing change it becomes our business to inquire closely which period of this change presents the most favorable opportunity for the ethnologist; but before I come to this topic it is necessary to say something about the nature of ethnological investigation.

Generally speaking, ethnological inquiry has two main varieties, which may be called "survey work" and "intensive work," respectively. By the former is meant work in which much ground is covered, observing and comparing the customs of different tribes and places. Often the worker is espe-

cially interested in some special subject, such as religion, language, or the useful arts, and does not attempt to study the culture of the people as a whole. His object is to gain knowledge of a number of peoples and of a variety of cultures, and in so doing he is obliged to be content largely with superficial information. The essence of intensive work, on the other hand, is limitation in extent combined with intensity and thoroughness. A typical piece of intensive work is one in which the worker lives for a year or more among a community of perhaps four or five hundred people and studies every detail of their life and culture; in which he comes to know every member of the community personally; in which he is not content with generalized information, but studies every feature of life and custom in concrete detail and by means of the vernacular language. It is only by such work that one can realize the immense extent of the knowledge which is now awaiting the inquirer, even in places where the culture has already suffered much change. It is only by such work that it is possible to discover the incomplete and even misleading character of much of the vast mass of survey work which forms the existing material of anthropology.

I have presented this rough sketch of the two main varieties of anthropological work at this stage of my report because, if the distinction be accepted and the need for intensive work recognized as the more important, it will follow that the state of flux which characterizes the material of the science is of great importance. Such intensive work as I have considered is not possible among a people who are as yet wholly untouched by western influence. A friendly reception and peaceful surroundings are essential to such work. It is only a people already subject in some measure to the mollifying influences of the official and the missionary who will not fear, or be offended by, inquiry into their customs.

Probably the most favorable moment for ethnographical work is from ten to thirty years after a people has been brought under the influence of official and missionary. Such a time is sufficient to make intensive work possible, but not long enough to have allowed any serious impairment of the native culture and, even if it has been changed, full and trustworthy information about the past can still be obtained from those who have participated in the rites and practices which have disappeared or suffered change.

If one were guided solely by the desire to obtain the most complete and ample records of human culture and to acquire the maximum amount of information in the shortest time, it would be best to seek out such places as I have indicated. There are, however, other considerations which must be taken into account. The rapidity with which culture changes varies greatly in different places, not only according to the extent of the external influence, but also with the susceptibility of the people to change. In many of the places which would provide the most profitable fields of work change is progressing so slowly that such a period as ten years will probably produce no very decided loss. We know, however, that ten years will see, not merely

a change, but the complete extinction of knowledge in many other places, and the problem presents itself whether it is not most important to save this rapidly vanishing knowledge, even although its collection may be laborious and apparently unfruitful as compared with the rich harvest of other regions. We have to choose between knowledge seemingly less valuable and certainly less extensive, but on the point of extinction, and knowledge abundant and full of interest, for the collection of which a good range of years seems to remain, so that the need is less urgent and immediate.

There is one feature of external influence upon human culture, which is of great importance in considering this relative urgency of different fields of anthropological inquiry. There can be no doubt of the existence of a principle at work which makes external influence far less destructive among a people with a relatively high culture than among those whose culture is very rude or barbarous. In such a country as India more than two centuries of western influence have had but little real effect upon the essential features of the culture of the people. The social organization, the language, and the religion are almost unaffected, and it is chiefly in material matters that any decided changes are to be found.

In such a region as the islands of the Pacific, on the other hand, external influence far less in amount and carried by far fewer people has had an infinitely greater effect in a much shorter time, an effect so great indeed that often we have not to discover what traces of external influence there are in native thought and custom; we have rather to inquire what relics of this thought and custom still remain. This difference, according to the scale of culture upon which western influence has been exerted, is a factor of great importance when we are considering the relative degree of urgency of different fields for anthropological inquiry.

Before I begin an attempt to compare the urgency of the need for investigation in different parts of the world and the existing means by which this need is being met, I must say something about the different kinds of agency by which ethnographical work is now being carried out, considering the special advantages and disadvantages which pertain to each.

If it be conceded that the special need of the present time is for intensive rather than survey work, it would seem at first sight that the most suitable people to undertake it are those whose life-work brings them into intimate relations with the cultures it is wished to understand more fully, viz., the official and the missionary. The advantage possessed by these residents is that they usually know the native language and are often on terms with the people which enable them to command their loyal and affectionate service, while the very nature of their work brings them into close relation with subjects of the greatest ethnological interest. In spite of these advantages, the amount of work we owe to the two groups of persons is disappointing both in extent and in scientific value, and it will throw some light on the problem before us to consider to what causes this is due.

First and foremost must be put the fact that both officials and missionaries are busy people, living often in climatic and other surroundings which leave but little energy for the performance of extra work after the necessary tasks of the day have been performed. The daily routine of life may leave time and energy sufficient for the record of impressions but not for the exact and methodical work which is the essence of intensive inquiry.

A second factor is want of training, and this affects not merely the way in which work is done but, strangely enough, often prevents work from being done at all. I have myself met with persons living among those of rude culture who possess a wide knowledge of native custom and that genuine sympathy with native thought which forms the first requisite for successful work, who have yet made no systematic records of any kind because their want of training has not allowed them to know where to begin, or how to tackle in any exact manner the teeming wealth of strange lore and custom with which they find themselves surrounded.

Still another difficulty, and perhaps the gravest of all, because it is one which can not be overcome merely by the acquirement of training or leisure, is that the occupations of both official and missionary bring them on occasion into conflict with native ideas and customs, so that their inquiries arouse suspicion in the minds of those whom they are trying more fully to understand. The official is necessarily driven at times to interfere with the normal course of native custom, and the mere fact of such interference leads the native to reticence, if not suspicion. He does not understand the point of view of those from another culture who have been set over him, and in order to be on the safe side will keep from the knowledge of his rulers matters which, if he knew better, would furnish no cause for interference but rather lead to measures conducing to his happiness and comfort.

The position of the missionary is even more difficult from this point of view. The government official does not come with the duty to destroy which is an essential part of the task of the missionary. The latter comes in order to replace a large part of the ideas and customs of the natives by new, and, since the ideas he wishes to change permeate the life of the people far more deeply and widely than he supposes, an atmosphere of reticence is liable to arise which greatly impairs the value of any record, even the most painstaking and thorough, which the missionary may attempt. The difficulty is so great that it is only the very exceptional man, one who combines scientific zeal with a real sympathy with native thought, who can give us such exact work as is now the need of anthropology. Even in the best work of this kind which has come from missionaries, it is probable that matters have been hidden from them which might have been revealed to others. The total mass of the contribution of missionaries to ethnology is so great that it is difficult to imagine what would have been the position of the science to-day without it, but it is only exceptional men, such as Codrington, Junod, Roscoe, and Strehlow, whose zeal and skill have enabled them to overcome the

obstacles which their calling has put in their way, and even if the general body of missionaries were far more deeply and widely interested in ethnographical studies than they are, it would still be necessary that their work should be supplemented by inquiries from other sources.

These sources have in the past been of two chief kinds: private enterprise perhaps assisted by grants from governments or scientific bodies, and expeditions organized directly by governments, museums, universities, or other public bodies.

It is to private enterprise that we owe much of our most valuable work in ethnology, and the reasons for this are clear. The mere fact that persons have been led by their knowledge and inclination to undertake such work implies that they have put the best of themselves into their task, while most of those so led have had some training in exact methods in other sciences. It should be one of the objects of any organization which hopes to further ethnographical inquiry to seek out such persons and help to direct into the most favorable channel energies which might otherwise fail of their full effect. Even if the work of a department is to be mainly directed to some special field of anthropological inquiry, it would be wise economy to devote a certain sum to supplement the resources of those who are prepared to give themselves to ethnographical work in other fields. Such persons are often prepared to give readily of their own financial resources, but these are usually insufficient for the inevitable expenses of the work they wish to undertake, and a relatively small sum set aside to assist the collection and publication of the results of individual enterprise would be an economical means of promoting the science of anthropology. It would be necessary to insure that such private enterprise was not directed merely by the love of adventure, but to see that the training or previous work of an applicant gave reason to expect such exact investigation as is now needed.

It is not, however, the zeal alone of the private worker which has given so great a value to his work; there is another cause worth dwelling upon briefly, because it suggests measures which will assist the productiveness of any collective work on a large scale. A recent German writer, Friederici,¹ has noted that investigators working alone seem to obtain more valuable results than expeditions endowed with a whole staff of experts. He suggests as a cause the disturbance and excitement produced among the natives by the various activities of the different members of an expedition. A number of people working together at different aspects of ethnographic work interfere with one another and impair the general efficiency. The cause suggested applies especially to survey work. The general condition of excitement produced by the temporary visit of a set of strangers among a people of rude culture is quite incompatible with any kind of serious work. As Friederici points out, the only possible course is to remove oneself and one's informants

¹Wissenschaftliche Ergebnisse einer amtlichen Forschungsreise nach dem Bismarck-Archipel im Jahr 1908 (Beiträge zur Völker-und Sprachenkunde von Deutsch-Neuguinea), Berlin, 1912.

as completely as possible from the general throng. Friederici's explanation applies especially to the short visits of a survey, but there are other factors which apply also to intensive work and to a long-continued stay among a people.

It is one of the characters of rude culture as compared with that of civilized peoples that it is far less easy, often indeed impossible, to separate those different aspects which are readily distinguished in a higher culture. Among ourselves it is possible to distinguish clearly religious from political, educational, and artistic activities, and each of these from the useful arts. The different domains often overlap, but those who wish to study one of these aspects of life find no difficulty in doing so, and are able to enter into any one subject thoroughly without having more than an ordinary and superficial working knowledge of the rest. Such specialistic treatment is difficult or impossible among peoples of rude culture or, if it be attempted, can result in nothing but incomplete and largely barren work. Thus, for instance, among many peoples of rude culture a useful art is at the same time a series of religious rites, an æsthetic occupation, and an important element in the social organization. One who studies the art merely on the obviously utilitarian side will miss whole worlds of thought and custom, by means of which alone the art and its details become intelligible. Similarly, the student of religion or of sociology who regards such technical occupations as without his province will pass over large fields of religious or social activity without which any complete understanding of his subject is impossible. Even a subject which seems as independent and self-sufficient as linguistics is now suffering severely from the attempt to separate it from other aspects of human activity with which it has the most intimate and vital connections. It follows that specialism in the collection of ethnographical details must be avoided at all costs, and one of the reasons why individual workers have been so successful in ethnology is that their isolation has driven them to take an interest in every aspect of the life of those among whom they are working, and whole departments of knowledge have not been allowed to remain below the threshold because they did not interest a specialist. Once this danger has been recognized, it is evident that it is one which can be avoided in collective work even of any magnitude. The work of an expedition will attain its highest efficiency if it takes note of this feature of ethnographical inquiry, and seeks to combine the advantages of individual enterprise with the work of specialists where this seems indispensable. Such combination should take the form of a division of the members of an expedition into workers who attempt to cover the whole field of ethnographical inquiry within a limited district, and experts and specialists whose task will be the survey and assistance of the intensive workers and the coordination of their results in the special departments in which they are interested.

Two other features of ethnographical work may be considered which may help the decision as to the kind of inquiry from which the most profitable

results may be obtained. The inadequate results of many anthropological expeditions are due to the fact that their primary aim has been the collection of material objects for museums. Persons who visit a savage or barbarous people with the idea of collecting for museums as their primary motive must inevitably come into conflict with the most cherished emotions and sentiments of the people. Any object used by a savage has not merely a utilitarian interest, so that the object can be replaced by another like it; it has, as I have already indicated, a wide æsthetic and religious interest. The man of rude culture is often bound to his implements and utensils, not only by the affectionate familiarity of long usage or even by hereditary interest, but often by emotions of reverence and awe associated with the religious character of the useful arts to which I have already referred. It is no mere coincidence that we so often read the record of the collection of so many thousand museum specimens side by side with the statement that the religious ideas and practices of the peoples were found to be wholly inaccessible. A man of rude culture is not likely to unbosom himself and reveal his most sacred thoughts and rites to one who begins his acquaintance by depriving him, even by honest and generous trade, of objects which stand in the closest relations to these thoughts and rites. To anyone who understands the place taken by his religion in the life of savage and barbarous man it is not surprising that expeditions organized to enrich museums should so often show so little acquaintance with the deeper elements of human nature.

This view by no means implies any depreciation of the value of museums or of the collection of objects to illustrate the arts and modes of life and thought of people of rude culture. When the intensive worker has found his way into the confidence and affection of those among whom he is working, he may often obtain objects ungrudgingly which would never even be seen by the mere collector. Still more important is the fact that everything which he obtains will have an infinitely wider and deeper meaning than anything which can be obtained by the cursory visitor. His collection will not consist of objects to hang on museum walls as meaningless structures, perhaps even as sources of misunderstanding and confusion, but will be definite and valuable contributions to the understanding of the history of human thought and action. What would otherwise be empty forms become full of meaning and interest in relation to the culture of which they are an integral part. An expedition which makes its collections the means of illustrating other knowledge rather than its primary and self-sufficient motive will perhaps obtain a smaller number of objects than a rapid and superficial survey, but each object will have a value which perhaps surpasses that of the whole collection of an expedition which tears the objects from their surroundings without adequate inquiry. Further, it is only by intensive work that it is possible to work out the processes of manufacture, and their illustration by the preservation of successive stages of a process, which are even more important than the collection of the finished object.

Another and closely allied problem is concerned with the relation between physical anthropology (somatology) and other branches of ethnological inquiry. Natives do not like being measured and they like it the less the more complete and thorough the examination by which the measurements are obtained. Such an apparently insignificant detail as snipping off a piece of hair for the purpose of microscopical examination may not merely offend the personal feelings, but may produce the utmost misery or even sickness through the infringement of a religious injunction. One who begins his acquaintance with a people by getting them to submit to physical examination can hardly expect to have obtained a satisfactory introduction to the confidence and sympathy of the people, if he wishes to carry his investigations beyond the superficial and the obvious. The case is exactly parallel with that of the work whose primary aim is the collection of material objects. If the physical measurement be postponed till a later stage of the inquiry, all that is wished can be done, and done far more effectually and completely, while other lines of inquiry will prevent misunderstanding and confusion which may be the chief outcome of the measurements alone. Pedigrees may show that many members of the population are the descendants of steady streams of immigration which have perhaps for generations been coming from other places, and an exact knowledge of relationship may convert a collection of figures useful only for the study of a limited range of problems into material of the utmost value for the study of heredity and racial intermixture. Here again the measurements may be fewer and they may cover a narrower geographical field, but they will form a far more valuable and a many-sided source of exact and trustworthy knowledge.

If the general principles and points of view which I have so far outlined be accepted, it will follow that the prime need of anthropology is for the intensive investigation of those living examples of human culture which are most likely to disappear or suffer serious decay. The primary and immediate task of any undertaking designed to further anthropological science should be the investigation of such examples of human culture by the most exact and thorough methods which are available, in which the collection of material objects and the examination of man's physical characters shall occupy such a place in the inquiry that they do not interfere with the general success of the undertaking, but are coordinated with other lines of work.

It is evident, however, that such intensive work as I propose, even if carried out on the most extensive scale, will succeed only in studying samples of human culture taken from the vast mass of material now awaiting the investigator. The question arises whether this intensive work should not be supplemented by survey work, less thorough but covering a wider field. There is at least one feature of the position which makes such survey work essential if the intensive work is to have its full value. It will be necessary to choose places to become the seat of the intensive work and for this purpose a preliminary survey will be essential; without it we should have an example

of random sampling to which the varying conditions would give a misleading and unsatisfactory character. Not only at the beginning, but throughout the whole inquiry, survey work designed to choose the places whence the samples are to be taken must form an essential branch of the undertaking.

Further, survey work will have another function. Even in a field of restricted extent, the intensive investigation of a whole area will be impossible. There must be places where it will be necessary to be content with less thorough work, and these gaps will be the more numerous and extensive the larger the area chosen as the field of work. It would be very dangerous to leave these gaps wholly unexplored, and survey work must thus furnish an integral and essential part of the work of an anthropological expedition if its more intensive work is to be complete.

I have now outlined a number of considerations which should act as guides in the attempt to assign to different parts of the world their relative importance to anthropology and the urgency of their needs for investigation. I propose now to undertake a brief survey of different regions of the globe outside America, with the object of ascertaining the urgency of the needs and how far these needs are being met by existing agencies.

EUROPE.

From the point of view of the anthropologist the interest of Europe lies in its archæology and in those survivals of past culture which form the subject-matter of folk-lore. At the present moment the archæology of Europe, and especially of its most ancient!paleolithic and neolithic periods, forms a subject of the most entrancing interest. The factor of urgency is here, however, largely absent except in so far as the interest of the subject is tending to interest the amateur and thus lead to the performance of rough and imperfect excavation. Further, there is one aspect, both of this line of work and of the study of European folk-lore, which makes unnecessary any special effort from without. The fact that the objects of research lie close to the homes of archæologists and ethnologists makes it possible for the work to be undertaken by those best qualified to do so. It is possible for those engaged in academic or other pursuits to undertake this work in their spare time and, as a matter of fact, much of the best intellect and skill of Europe is now being attracted to the exploration of caves and other sites of prehistoric human activity. The nearness of these sites to the universities of Europe makes the means for research far more adequate to its needs than in any other branch of anthropological inquiry.

These considerations also hold good of the exploration of the remains of the early historical cultures of Italy, Greece, and the islands of the Mediterranean. In some of these, and especially in some of the Mediterranean islands, the depredations of dealers introduce an element of urgency, but there are already so many agencies at work that there seems to be no decided need for any new effort on a large scale.

Perhaps the most urgent needs in Europe are for the study of the existing cultures of Lapland in the north and of the countries of its southeastern corner and especially of Albania. The former task could, however, be most suitably undertaken by one of the Scandinavian countries, while political conditions make the present an unsuitable moment to attempt the study of Albania or other countries of the Balkans.

AFRICA.

The reasons which make Europe a field in which there is no urgent need for external help apply also to the more northern parts of Africa. Morocco, Algeria, Tripolitania, and Egypt are so close to Europe that it is possible for European experts to combine archæological and ethnological investigations with the performance of academic or other duties at home. Even apart from this accessibility, however, these countries excite so much interest that they are already the seat of many agencies for scientific work. Most of these agencies are devoted to archæological research, but existing cultures are not neglected. Those of Algeria and Morocco have been the subject of several valuable studies by French authors, while for several years Professor Westermarck has been carrying on inquiries into the religious and social institutions of Morocco, combining this with academic work in England and Finland.

On passing further south in Africa there is much scientific activity which may also be ascribed to the nearness to Europe. Thus, it is probably the frequent visits of its officials to Europe and consequent bringing into touch with the modern movement of thought which have led to the employment of a government ethnologist in British Nigeria and the undertaking of an anthropological survey of the Anglo-Egyptian Sudan by its government. Many officials of the governments of northern Africa employ their furloughs in obtaining a training in ethnological methods, and such training has now been made compulsory for its probationers by the Sudanese government. From Uganda we have now a large mass of intensive work of the highest order from the Rev. John Roscoe and much excellent work from officials of British East Africa. Though there is still much to be done, there is reason to hope that the British possessions in northern and central Africa may become one of the most thoroughly worked regions of the world from the point of view of the ethnologist.

In the Belgian Congo a government official is now employed to work at ethnology, and much has been learned by the work of officials, missionaries, and special expeditions, but there still remains a vast amount to be done, especially in the way of intensive work. We know very little at present of the details of the social organization and religion of the people.

In the German possessions in Central Africa the conditions are much the same as in the Belgian Congo. Though no direct encouragement to ethnographical research is given by the government, this is counterbalanced by the larger mass of work produced by residents and expeditions. Much

of this work, however, has been done in the interest of museums and suffers from the defects of such interest; very much still remains to be done in the intensive study of native culture as a whole.

The Portuguese possessions of Africa present almost an unworked field, so far as intensive work is concerned.

It is difficult to ascertain how rapidly the native culture is changing and how great is the consequent urgency of the needs in the countries I have just considered. We know that some of their peoples, such as the pygmies of the Congo forests, are not yet ready for intensive work, and that, on the other hand, the ravages of sleeping sickness have decimated large tracts of country, and must thus have produced a most urgent need for inquiry in many places. Many parts of Africa have now been opened up for just about that time which would lead us to expect its people to be in the most favorable condition for intensive inquiry, but on the whole it would seem as if the native culture of this part of Africa was somewhat less liable to disintegration as the result of external influence than in some other parts of the world.

In one part of Africa, however, the urgency of the need for research stands beyond all question. South Africa was formerly inhabited by two of the most interesting peoples of the world, the Bushmen and the Hottentots, but all that now remains of these unique peoples are small wandering bands rapidly approaching complete extinction. The Bushmen of the Kalahari Desert have recently been studied by Dr. Rudolph Pösch, and Miss Winifred Tucker is now working with a band of Hottentots near Walfisch Bay, with results which show how much of value is still to be elicited by modern methods of research. With these exceptions, however, nothing is being done to save knowledge of the utmost value which is now almost extinct.

The Rev. H. A. Junod has recently given us a work of extraordinary merit on the Thonga, a Bantu tribe, but with this exception little intensive work has been done among the other peoples of South Africa. The superior culture of the Bantus seems, however, to make them less readily affected by external influences than many other peoples. The matter does not appear to be of immediate urgency, though it is to be hoped that adequate inquiry will not be long delayed.

ASIA.

In the parts of Asia lying nearest to the Mediterranean the conditions are similar to those of northern Africa. The region is one which through its past history excites the greatest interest, while it is accessible as a field of work for those holding academic or other positions in Europe.

Perhaps one of the least-known parts of the world, both archæologically and ethnologically, is Arabia, and this country would therefore seem to be a very favorable field for work, but there is no reason to believe that its needs are in any way urgent. The postponement of the exploration of Arabia, and the investigation of its culture for some years, will almost certainly do good rather than harm.

The northern parts of Asia present a very attractive field for work, but much has been done in this region by Professor Sternberg and the Jesup Expedition; until this work has been fully published it is hardly a region which calls for new work. It is probable, moreover, that the uninviting character of the country will prevent such rapid changes as would make its investigation a matter of any very great urgency. A more urgent problem is presented by the study of the Ainus of northern Japan, with whom little field work of an intensive kind has been done. Central Asia presents a vast field for research, but with one exception it does not seem to be a profitable field for inquiry nor does it probably present any great urgency. The exception to which I refer is that of the peoples of the western border of China, whose culture probably possesses features destined to illustrate many vexed ethnological problems. The investigation, however, would be one of great difficulty, and there is no reason to believe that these people are undergoing such change in culture as makes the problem one of special urgency.

The same holds good of Tibet and Nepal. Interesting as these countries are, there is little doubt that they will give as fruitful results twenty or even fifty years hence as at the present time.

A more immediate field for research is presented by British India. Partly through private work, partly through the initiative of the government, a vast mass of survey-work has now been carried out, but there still remains an ample field for intensive work. The governments of India and Ceylon have, however, shown themselves ready to subsidize any private workers who wish to undertake such investigation, and the Indian problem, though urgent, is less so than that of many other parts of the world. Changes are now in progress among many sections of the population, but the more secluded peoples, who are of especial interest to the ethnologist, are not likely to be appreciably affected by a few more years' delay.

The same may be said of Burma and the other countries of the southeast corner of Asia. We know very little of the more backward elements of the population of these countries and a thorough exploration would certainly lead to the discovery of facts of the greatest interest, but the countries are in a relatively stable condition and there is no prospect of any great changes in the immediate future.

It will have been noticed that nearly everywhere I have spoken of the ethnological problems of Asia as presenting no special urgency. Before passing on to other regions, it may be well to point out that this is chiefly due to the working of the principle that relatively high cultures are not especially susceptible to external influence. Asia is in general the seat of well-established cultures of a high order and, though these are undoubtedly undergoing modification as the result of western influence, the changes in progress are not of that rapidly disintegrative character which is having such blighting and ever annihilating influences elsewhere.

MALAYSIA.

This term is used to comprise a large region including the Malay Peninsula, the islands of the Malay Archipelago, Borneo, the Philippines, Formosa, and also Madagascar, which (though situated close to the African continent) is linked by its culture more closely to the islands southeast of Asia. This vast and scattered region is one of great ethnological unity, which presents a very important field for research.

We possess extensive records of survey work from this region, but only here and there has any intensive work been done, and even that lacks much that we wish to know about social organization and the details of rite or custom. The larger part of the region is formed by the Dutch colonial possessions and is not undergoing any rapid change, but in some regions, such as the Malay Peninsula, Sumatra, the Philippines, and probably Madagascar, changes are taking place with sufficient rapidity to make the matter one of some urgency.

NEW GUINEA AND MELANESIA.

The island of New Guinea is the greatest storehouse of ungarnered lore which remains for the ethnologist. Many parts of the island have not yet been visited at all, while there are others where native life still goes on almost wholly undisturbed by the influence of western peoples. In consequence, many regions of the island are not yet ripe for intensive ethnological investigation and may safely be left for some years. Other regions have now been subjected to the influence of official and missionary for just about that time which gives the opportunity for work of the most fruitful kind, and in still other places the changes due to external influence have been so rapid that the native culture is already on the point of extinction and only a few years' delay will mean the complete loss of unique varieties of human culture. This is particularly the case in the neighborhood of Port Moresby and Samarai, the two chief settlements in British New Guinea, but there are similar places in German New Guinea, though the more recent settlement of this part of the island perhaps makes the urgency somewhat less acute.

Of the three political divisions of the island, the western half, which is a Dutch possession, is so little explored that there is here no urgency, except perhaps in a few districts of the coast. In the British portion, which is now governed by Australia, much has been done by officials and missionaries, and by expeditions from England, among which the Cambridge Expedition to Torres Straits and the work of Messrs. Seligmann, Williamson, and Landtman must be especially mentioned. All of this work, however, has only collected samples here and there out of the vast variety of human culture represented by this region, and there remains work for many investigators, some of it of great urgency.

In the German portion of New Guinea much has been done in the last few years by various expeditions, but this work has been largely of the survey

kind and there is ample scope for intensive work in every part of the country. The work hitherto done also suffers from the defect that it has been carried out largely in the interest of museums. Even now the attention of German ethnologists is being almost exclusively directed to a region, that of the Kaiserin Augusta River, which is extraordinarily rich in objects of museum interest, though it would seem to be not yet ripe for intensive investigation. The people of the coast, on the other hand, who have largely passed beyond the stage in which they provide striking objects for museums, are neglected, although they are just in that condition which makes them the most favorable subjects for intensive work.

The islands of the Bismarek Archipelago are in much the same condition as New Guinea. Some of its peoples, such as those of the south coast of New Britain (Neu-Pommern), are still almost wholly untouched by external influence, so that they are still unprofitable subjects for intensive work, while in other places, such as parts of the Gazelle Peninsula and Duke of York Island (Neu-Lauenburg), the native cultures are in urgent need of study. Much has been recorded about these islands, especially by Parkinson, and work has been done by recent German expeditions. Only when this has been fully published shall we know how much still remains to be done.

Some of the smaller islands of this region are places where the urgency of the need for investigation perhaps reaches its maximum. As only one example out of many, I may mention the small island of Luf, west of the Admiralty Islands and north of New Guinea. In 1909 Dr. W. Müller visited this island and found only 36 survivors of its former abundant population, a number which had already shrunk to 29 when he returned to the island a year later.¹ Luf is one of a chain of islands which have furnished some of the most wonderful objects which our ethnological museums contain, but we know practically nothing of the social organization or religion of any one of them. As Dr. Müller says, now that these islands have been deprived of their museum curiosities, ethnologists seem to take no further interest in them.

In the more southern parts of Melanesia, under the protection of Great Britain and France, either jointly or singly, the conditions are much the same as in New Guinea and the Bismarek Archipelago. In the interior of the larger islands of the Solomons there are peoples who are still far too wild to be profitable subjects for intensive investigation, but nearly everywhere else the people are either in a state which makes them admirable subjects for intensive work, or the native culture has disappeared to such an extent that the need for investigation is very urgent. Much valuable work has already been done, especially by Dr. Codrington and other missionaries, and the Percy Sladen Trust Expedition, which went to Melanesia five years ago, worked out very thoroughly the culture of one district of the Solomon Islands. The survey work of this expedition shows, however, that the work which has been done is negligible in amount beside that which still

¹Arch. f. Religionswissenschaft, 1913, Bd. XLVI, S. 200.

remains to do. There is probably no part of the world where a larger amount of valuable material can be saved during the next few years than in Melanesia, and yet at the present moment little or nothing is being done.

AUSTRALIA.

The aborigines of this country have attracted so much attention in recent years and have already been the subject of so much work that we may now hope to know their culture far more completely than that of most other peoples of the world. There still remains, however, much work to be done, and this of great urgency. Many Australian tribes have already followed the Tasmanians into extinction, and there are many others of which hardly anything remains. A large amount of good intensive work has, however, already been done, and one of the ablest of the younger English ethnologists, Mr. A. R. Brown, is now engaged on a thorough study of the peoples of West Australia, about whom our knowledge has hitherto been very defective, and he proposes to extend his work to other regions. Further, the importance of the problems presented by the aboriginal culture has been recognized by the governments of Australia, as shown by their encouragement of research and their appointment of protectors of the aborigines, who have contributed largely to our knowledge. It is to be hoped that the approaching visit of the British Association will arouse even more fully the interest of Australians in the vanishing culture of their continent, the study of which can safely be left to their enterprise.

POLYNESIA AND MICRONESIA.

The islands of the Pacific Ocean present a difficult problem from the point of view of their suitability as a field for ethnographical investigation. In most of them the native culture has been so influenced that it would seem to have passed beyond the point at which any exact knowledge of its former condition is to be expected. Nevertheless the culture of these islands was so unique, and raises so many important problems, that it is necessary to consider fully whether anything should be done to save what remains of the culture in the memories of the people, if not in working activity. Some facts are available which show that the matter is not so hopeless as is usually supposed. There is no part of the Pacific where the native culture would appear to have been wrecked more completely than in the Hawaiian Islands, and yet during a brief visit, five years ago, I was able to collect details of ancient social organization which agreed closely with information recorded forty years earlier by Morgan and Hyde. Again, in Tonga I was able to obtain information, the correctness of which was shown by its agreement with the records of earlier workers, together with other facts which were previously quite unknown to ethnologists. In New Zealand Mr. Elsdon Best is now obtaining from old Maories large stores of information hitherto unrecorded; and in Fiji, a place supposed to have passed beyond the scope of profitable inquiry, Mr. A. M. Hocart has been able, in the last four years,

to collect a large mass of knowledge of the utmost value by the use of modern methods of research, especially through the use of pedigrees.

If information of value can thus still be collected from such places as the Hawaiian Islands, New Zealand, and Tonga, where western influence has been especially pronounced, there must still be much to be learned in the more remote groups of Polynesia, such as the Paumotu, Marquesan and Harvey groups, and in the smaller scattered islands. In some of these in the neighborhood of Melanesia, such as Tikopia, Anudha, Bellona, and Sikaiana, it is certain that the native Polynesian culture still remains in an almost pure form. A thorough survey of Polynesia will yet provide material of the utmost value to the ethnologist.

While the opportunity still remains for intensive research in Polynesia, little or nothing is being done. An expedition has recently gone from England to investigate the archæology of Easter Island and, as I have already mentioned, Mr. Elsdon Best is putting on record the memories of Maori culture, but with these exceptions nothing is being done to save vanishing knowledge. In such centers of western culture as the Hawaiian Islands and New Zealand most of those who are interested in native lore and custom spend their time in linguistic and other speculations rather than in endeavoring to recover from the natives such evidence of past history as still remains.

In Micronesia the conditions are more satisfactory. In some islands, as in those of the Ladrões or Marianne Group, the native culture would seem wholly to have disappeared, but much still persists in others, such as the Caroline, Pelew, Gilbert, and Ellice Groups. Not only is there thus a better field for work, but the work is being done. The large expedition which went to the Pacific Ocean from Hamburg a few years ago has carried out a thorough investigation of the groups which form part of the German possessions, viz., the Caroline, Pelew, and Marshall Islands, but there still remain other islands, such as the Gilbert and Ellice Groups, about which our existing knowledge is trivial, and where there is a rich harvest awaiting the investigator.

The main result of this survey has been to show that there are two parts of the world outside America which present a combination of great urgency and favorable conditions for work with very deficient attempts to do what is needful. These two places are the southern parts of Africa and Oceania, both of which contain peoples of the greatest scientific interest, whose culture is on the point of extinction; in both a large amount of work of the utmost value can be done comparatively easily and economically and, with the exception of the German possessions in Oceania, practically nothing is now being done to meet the urgent needs presented by the rapid disappearance of the native cultures. In other parts of the world, such as the countries of Asia, Australia, and northern Africa, the need is either less urgent or there is a definite prospect of the accomplishment of the necessary work by agencies already in operation.

There is little to choose between Africa and Oceania in the matter of urgency, and the choice between these two fields must turn on other factors and especially on the degree of their scientific interest. In order to deal with this subject of scientific interest it is necessary to say something about the present condition of the science of anthropology; and since in both of the regions which seem most favorable for work the interest is ethnological rather than archæological, I propose to deal chiefly with the ethnological aspect of anthropology.

Ethnology is a very young science and is at present in the stage at which it is seeking for principles and methods by means of which to obtain a firm footing amidst the vast complex of facts with which it has to deal. At the present moment there exists the widest divergence of opinion among students of the subject. According to some the course of man's history has been a simple and direct evolution in which the various cultures of the world are the outcome of diverging processes of development starting from some common source. According to this view some of the existing cultures of the world represent stages in the process whereby western civilization has reached its present height, while others are the outcome of lines of development which have failed to develop into civilizations fit to compete with those which have become dominant in the world's history.

Other students of human culture reject the view that any peoples now existing on the earth are to be regarded as simple representatives of stages of human development, but believe the course of this development to have been highly complicated—every existing culture, even when it is apparently most simple, being the result of the blending of cultures which have been carried over the earth's surface by the movements of migrating peoples. To them the primary task before the ethnologist is the analysis of the complexes presented by existing examples of human culture.

The settlement of the dispute between these two opposed schools of thought will turn largely on how far the process of ethnological analysis will be found possible. This must first be attempted in places where the conditions are relatively simple and favorable, and there is much reason to believe that such favorable conditions are to be found in insular rather than in continental areas. An insular area prevents or limits those secondary movements of people which are apt to obscure the main results of the blending of peoples, and thus gives a simpler product for the process of analysis. An insular region, especially one so vast and diversified as that of the islands of Oceania, allows different parts to be affected in very different degrees by any immigrant culture, while the fact that certain islands or groups of islands may wholly escape an incoming influence allows the application of the method of difference in a way which is most exceptional, if it ever occurs, in a continental area.

Further, there is another way in which an insular region has a special interest. If the task of ethnological analysis is to have any chance of success, a number of preliminary problems will have to be settled. There will have

to be determined how far elements of culture carried from one part of the world to another tend to disappear or become modified, and what are the causes which lead to this disappearance or modification. There has also to be settled how far introduced influences can modify the native culture and produce customs and institutions which were not present before the blending of the two peoples, but only came into being as the result of their contact. Here again the variety of an insular region and the greater isolation of its constituent parts allow such processes to be studied in a purer form than in a continental area.

Whether it be for these or some other reasons, it stands beyond question that the culture of Oceania presents a variety, combined with a relative simplicity of its various elements, which makes it a most suitable field for the application of the process of ethnological analysis. It has attracted the attention of the leading adherents of the school which believes in the complexity of human culture, and some of the chief attempts to study human culture from this point of view have taken the peoples of Oceania as their starting-point and have worked from that to other parts of the world. Such attempts have hitherto been far from satisfactory, but that is inevitable with the existing defects in our knowledge. This defectiveness of existing knowledge in a region the theoretical importance of which has been so widely recognized furnishes a most cogent motive for the choice of this region as a field of work.

There is yet another reason which should lead to the choice of this field of work by an American institution. There is no part of the world where the problem of simplicity or complexity of culture is of a more burning and yet more difficult character than the American continents. It has become almost an axiom among the majority of students of ethnology that the culture existing in America before the advent of the early Spanish navigators was of wholly indigenous growth, and that all the features are to be accounted for as the results of a process of evolution starting from some elementary form of human culture. It would take me beyond the scope of this report to consider this matter fully, but I should like to deal briefly with this subject in so far as it suggests openings for investigation. The conclusion that the culture of the American continents has had a wholly independent growth ignores certain features of human intercourse of which even now we have some knowledge. History and ethnology combine in providing us with evidence that all the great movements in human progress are the results of the contact and interaction of peoples and their cultures. All the evidence goes to show that a culture left to itself suffers degeneration, and that it is only the coming in of some new awakening influence which can save it from the inevitable decay which isolation brings. Further, there is clear evidence that such influence from without has been an essential factor in the production of the special developments of American culture. There is no disagreement about the foreign origin of the Incas, and immigrations of peoples from elsewhere form an undoubted element in the beginnings of Mexican

culture. The vast majority of the students of American culture, however, conclude that the movements of people which produced these outbursts of development came from some other part of the American continent. It has only been possible to reach this conclusion by ignoring certain factors in the movements of peoples about the earth's surface of which we already have some knowledge.

There are many features of human culture which point strongly to the vast extent of the influence which can be exerted by relatively small numbers of migrating peoples.¹ If the influences which produced the outbursts of activity of American culture had been necessarily the work of vast migrating hordes of peoples, there would be much reason to agree with the conclusion that American culture is wholly an independent growth, but if stimuli to special developments can be applied by small bodies of wanderers, perhaps no more numerous than the occupants of a single vessel, many of the objections to the complexity of American culture wholly lose their force.

A second factor which has been ignored by the upholders of the unity of American culture is the extent to which arts, even the most useful, can disappear. We know that an object such as the canoe can disappear among islanders to whose welfare it would seem to be absolutely essential,² and if such a means of transport can thus vanish much of the evidence which has been trusted to disprove the complexity of American culture loses its validity.

These two considerations are sufficient to show that the unity or complexity of American culture is no subject for dogmatic statement. The whole problem of this unity or complexity will have to be reconsidered from the beginning, with open and unbiased minds, and, if this be so, one conclusion is obvious. If we are to consider the complexity of American culture, even as a possibility, it is evident that the problem can never be solved by the study of American culture itself. No problem concerning the possible relation of one culture to others is ever going to be decided by an examination, however minute and accurate, of one culture alone. It is only through the comparison with cultures elsewhere, both of the present and of the past, that we can expect any solution.

If with this necessity in mind we study the possible relations of the American to other cultures, we find on one side of America cultures so advanced that it would seem hopeless to seek in them for any traces of influence which may have reached America in early times. The vast changes in the culture of the American continents initiated by the voyages of the Spanish navigators were probably not the first results of influence from the east, but, if such earlier movements westward from Europe ever took place, they must have been in so remote a past, and the cultures from which they sprang

¹I have considered this subject fully in a paper shortly to be published in "Essays and Studies presented to William Ridgeway."

²See a paper on "The Disappearance of Useful Arts," in the "Festskrift tillegnad," Eduard Westermarck, Helsingfors, 1912, p. 109.

are so overlain by later changes and developments that it would seem hopeless ever to expect evidence from the study of existing European cultures. If evidence of value is to be obtained in this matter, it will come, not from the study of existing peoples, but from the buried records of the past. On this side of America archaeology must have a greater interest than ethnology.

If it is therefore hopeless to look to the east for an ethnological clue to any factors which have influenced the early course of American culture, we are driven to look to the west, and as a matter of fact it is in this direction that the eyes of students of American culture have been turned. Influenced, however, by the belief that the means of transport now found on the western coast of America are an index of the past, attention has been directed exclusively to the northwestern corner as the path by which any influence can have reached the American continents from without, and any other route has been put on one side as unworthy of serious consideration. If, however, the art and means of navigation may atrophy or disappear, it becomes necessary to take into account the possibility that influences may have reached America by the vast ocean which bounds its western shores.

I have ventured to include this topic in my report because the considerations I have brought forward seem to furnish the strongest grounds for an investigation of the cultures which lie on the western side of the American continents, viz., those of Polynesia, Melanesia, the Malay Archipelago, and the eastern parts of Asia. It is not possible to predict from which of these regions we are likely to obtain the most definite clues to any influence or influences which may have reached the American continents from the west, but all these cultures have obvious elements in common, and this interrelation of the different regions makes the study of any one fruitful in relation to the rest. It is possible, however, to point out certain features of the different regions which suggest roughly the order in which their investigation may most profitably be undertaken.

The culture which lies nearest to America is that of Polynesia and it is the culture of this region which shows most clearly traces of affinity to that of America. Further, it is in this region that the need for investigation is most urgent. Nowhere else in the world, perhaps, have we a form of human culture so near extinction, so urgently demanding investigation if any addition is to be made to our far too scanty knowledge. Even now in many parts of Polynesia it will only be possible to study the wreckage of a culture which probably stands in a closer relation than any other to that of the American continents.

Next in order of importance comes Melanesia. The reason for this importance is that Melanesian culture bears the clearest evidence of the influence of the migrant peoples who form the population of Polynesia. Around Melanesia there are to be found Polynesian colonies which have probably preserved, even more purely than any part of Polynesia proper, the culture which the ancestors of the Polynesians brought with them from their

former home. It is in such little islands as the Reef Islands, Tikopia, Anudha, Bellona, Sikaiana, and Ongtong Java that we may expect to find the purest traces of such Polynesian and pre-Polynesian influences as seem to be the most probable sources of any stimuli from without which may have reached the American continents.

From the point of view now under consideration the interest of the islands of the Malay Archipelago lies in the fact that they form a region through which the ancestors of the Polynesians passed on their way eastward. In some islands of Malaysia, such as Mentawai, Engano, and Nias—and probably also in the interior of the larger islands—there still remain cultures which seem to be closely related to that of the founders of Polynesian culture, and an investigation of these places will be an indispensable preliminary to any complete understanding of influences which may have reached America from the west. There are, however, two reasons which make the matter somewhat less important and urgent than the study of Polynesia and Melanesia. One is that the earlier culture of the Malay Archipelago has been overlain by relatively recent Chinese, Mahomedan, and Hindu influence, so that we are here confronted with the difficult task of analyzing out these elements of the culture, and abstracting them from the existing cultures, before we are able to place ourselves in a position to study the earlier cultures related to those of America. Secondly, there is reason to believe that the need for investigation is less urgent here than in the case of Melanesia and certainly far less so than in the case of Polynesia. Nevertheless, it is to be hoped that the ethnographical investigation of this vastly important region will not be long delayed, for it probably contains the clue to many now mysterious features of man's history.

There remain the peoples of eastern Asia, the most important of which, from their possible relation to American culture, are probably those of the southern and northern corners. The southeastern corner of Asia and the regions bordering on the southern parts of China have probably been the seat of very important developments of the cultures of the peoples who populated the islands of the Pacific Ocean, and it is to be hoped that these regions will sooner or later receive attention at the hands of ethnologists. There do not appear, however, to be such changes in progress in these regions as give any special urgency to the need for investigation. It is probably only when we have succeeded in formulating problems more exactly that exploration of these regions will be undertaken most profitably.

The relation of the northeastern corner of Asia to American culture is clear, but this relation is already fully recognized, and the work of the Jesup Expedition has been especially devoted to the problems so suggested. Till the accounts of the work of this expedition are complete, it seems hardly needful to consider how it may be supplemented by further work.

The relation of the civilization of China and Japan to American culture does not seem a profitable subject at the present moment. In so far as there

is any relation between the two, it must be in their being vastly different developments starting from similar origins, and till we know far more than at present of the more backward elements of the culture of these peoples, little is to be expected from a study of China and Japan in relation either to the general problem of the interaction of cultures or to the more special problem of the origins of American culture.

One consideration may be suggested as justifying the study by American ethnologists of cultures different from that of their own continent. The proverb that "outsiders see most of the game" is nowhere truer than in science. One coming to the study of a problem from some other field of scientific work is very likely to find the solution of a problem which has escaped those who, through long absorption in the details of their subject, fail to see the conclusion to which those details lead. If this be true of science in general and of a change from one science to another, it is still more true of the different fields of work which form the objective of such a subject as ethnology. It would, I believe, be difficult to overestimate the advantage which would accrue to the study of American ethnology by the establishment in America of a body of workers devoted primarily to the study of some other people. Oceanic culture, though allied to that of America, is yet so different that it would furnish a field the study of which should react on that of American culture, and bring into the latter new points of view, new modes of thought, and new methods of inquiry. The study of Oceania or of some other external field of work must do much to stimulate and fertilize American ethnology. It may perhaps in the long run turn out to be the best way to advance our knowledge of the processes whereby there came into being the indigenous culture of the American continents.

SUMMARY OF REPORT.

In considering the claims of different kinds of work and the choice of a region where work is needed, especial stress is laid on the factor of urgency, which is taken as the chief guide throughout the report. Anthropology differs from all other sciences in that its material is undergoing rapid change. In many parts of the world examples of savage or barbarous cultures are so near extinction that, if anything is to be saved, a special effort must be made within the next few years.

Of the two chief departments of anthropology, viz., ethnology and archæology, it is the needs of the former which are especially urgent, while with some exceptions archæology will even gain by delay.

The nature of research in ethnology is considered and two main varieties distinguished, survey and intensive work. Through a large amount of survey work we already possess a wide knowledge of savage and barbarous cultures in their more superficial aspects, but it is only in quite recent years that methods have been developed by which the deeper elements of such

cultures can be studied exactly and intensively. It is this exact and intensive study of which there is such urgent need at the present moment.

If intensive work be recognized as the immediate need of anthropology, this has a definite bearing on the choice of a field of work. There are still parts of the world where savage peoples are so untouched by external influence that intensive study is not yet possible, and these places should be left for the future. In other places human culture is in a condition most favorable for intensive work, so that a large mass of information of the greatest value can be readily obtained. Such places would no doubt give the largest returns for a given expenditure, but it is necessary to weigh their claims against those of other places where there is less to be learned, but where the imminent disappearance of their culture introduces the factor of urgency.

The nature of the agencies by which work is now being done is then considered. It is shown that the official and the missionary who might seem, through their knowledge of the people and their language, to be best fitted for intensive work are nevertheless subject to grave disadvantages for such work, even if they have the necessary time and training. Attention is drawn to the obstacles which arise if undue prominence be given to physical measurements or to collecting for museums. What is needed is work in which trained investigators can give their whole attention to ethnological work, untrammelled by official or other duties, in which different lines of research shall be coordinated in such a way that no one of them shall interfere with the general efficiency of the undertaking.

The different regions of the earth outside America are then surveyed with respect to the urgency of their needs and the agencies by which these needs are now being met. It is shown that the amount of attention given to ethnological research in different parts of the world stands in a definite relation to their distance from centers of western civilization, and that two regions, southern Africa and Oceania, combine an extreme degree of the urgency of their needs with very inadequate attempts to meet those needs. Of these regions it is suggested that Oceania should have the preference. It includes places where interesting and important examples of human culture are on the verge of extinction and other places which are in a condition especially suited for intensive work, so that a large mass of valuable material can be obtained with relative ease. Through its insular character Oceania presents conditions of especial importance in the study of certain theoretical problems, and it has a special interest in that its culture stands in close relation to that of the American continents. It is suggested that the study of a region allied in culture to that of America may react on the study of American ethnology and may prove the best means of reaching positive conclusions concerning the exact nature of the indigenous culture of America.

AUGUST 4, 1913.

REPORT
ON THE
SCIENCE OF ANTHROPOLOGY IN THE WESTERN HEMI-
SPHERE AND THE PACIFIC ISLANDS

By ALBERT ERNEST JENKS

Professor of Anthropology, University of Minnesota

CONTENTS.

	PAGE.
Subject-matter of Anthropology.....	31
Physical Anthropology.....	31
Ethnic Anthropology.....	32
Cultural Anthropology.....	32
Prehistoric Anthropology.....	33
Present Status of Anthropology.....	33
Physical Anthropology.....	34
Ethnic Anthropology.....	34
Cultural Anthropology.....	35
Prehistoric Anthropology.....	36
Research Problems and Opportunities in Anthropology.....	38
The Pacific Islands.....	38
Polynesia.....	38
Melanesia.....	40
Micronesia.....	41
Malaysia.....	41
Negritic Territory.....	43
Prehistoric Stone Remains.....	44
The Western Hemisphere.....	45
Origin of the Aboriginal American.....	45
The Eskimo Problem.....	47
Antiquity of Man in America.....	48
Origin and Spread of Aboriginal American Culture.....	52
An American Chronology.....	54
Modern Problems.....	51
Ethnic Heredity.....	55
Influence of Environment on Mankind.....	56
Human Amalgamation.....	57
An Anthropological Laboratory.....	59
Conclusion.....	60

REPORT ON THE SCIENCE OF ANTHROPOLOGY IN THE WESTERN HEMISPHERE AND THE PACIFIC ISLANDS.

SUBJECT-MATTER OF ANTHROPOLOGY.

For working purposes to-day, the science of anthropology may be classified as follows: (1) physical anthropology, (2) ethnic anthropology, (3) cultural anthropology, and (4) prehistoric anthropology. The field of anthropology has been variously divided and its divisions have been variously named. The terms physical anthropology, somatology, ethnology, ethnography, culture anthropology, archæology, prehistoric anthropology, and numerous others have been used. In this report the aim is to unify the names of the divisions of the field for the sake of clearness, and they are therefore given in terms of anthropology. A brief statement of their subject-matter will be given, and, for further elucidation, some of the general research problems of each will be suggested. The divisions serve mainly as avenues of approach to the extensive anthropological domain, and no permanently fast and fixed lines can be drawn between them.

PHYSICAL ANTHROPOLOGY.

Physical anthropology has as its subject-matter the entire biological history of man: his origin, development, variations, and decline as a member of the animal kingdom.

The most important problem of the physical anthropologist is to make clear, so far as possible, the origin of man. The theory of evolution, as applied to man, is accepted by a majority of educated people to-day, but its proof is not yet universally conceded. Evidence of man's presumptive ancestral or collateral kinship should be gathered from the living primates and from fossil animals, now and then fortunately discovered, until the suspected relationship is proved or disproved. Present-day experts in schools of palæontology, of human and comparative anatomy, physiology, neurology, embryology, and psychology should be brought into sympathetic touch with the large phylogenetic problem set before the physical anthropologist until such an array of comparative data is at his disposal that there can no longer be reasonable doubt as to man's exact zoölogical position. Those characteristics which are essentially human must be selected, and the point in development determined at which the manifestation of certain other characteristics becomes the essence of humanity. In the solution of this problem one will be led into the midst of the seething biological problem of mutation *versus* slight and continuous variation.

Typical individuals of the important groups of men should be exhaustively studied, that data may be at hand for comparative individual and

ethnic studies. Hand in hand with the study of man's phylogeny should go that of his ontogeny or individual development. From birth to death the life of normal man under different typical environmental conditions should be known and recorded. Every infinitesimal step of the life of the normal individual should be scrutinized, with the practical object of enabling the man of the future to reach the highest possible point of development.

The physical anthropologist should know and teach the value of types of men already naturally adapted by selective process to diverse environments. So subject to hereditary variation is mankind that all typical variations should be studied as to manifestation, cause, and result. The laws of human inheritance should become such common knowledge that mankind, always largely controlled in conventional marriage by public opinion, may be controlled by an educated public opinion. When society is so controlled man can, and it is hoped very largely will, build up his successive generations with intelligent purpose, looking more and more to the welfare of unborn generations.

ETHNIC ANTHROPOLOGY.

Ethnic anthropology has as its subject-matter all those descriptive data, zoölogical and cultural, which enable a student to distinguish between various human groups, such as the different races, peoples, and tribes. It deals with all human groups, except such as exist primarily because of unity of belief, interest, or social function.

The research aim of the ethnic anthropologist is, first, to study undescribed ethnic groups; second, from all descriptive ethnic material, whether new or old, so long as it is authoritative, to discover the distinguishing characteristics of various ethnic groups together with the causes, the meaning, and the importance of such characteristics; third, to study the modification of ethnic groups and group characteristics, resulting from amalgamations and blendings, from migrations, and from change of environment, whether geographic, ethnic, or cultural. This division of the science, in conjunction with physical anthropology, brings the anthropologist into closest touch with modern peoples and practical problems.

CULTURAL ANTHROPOLOGY.

Cultural anthropology has as its subject-matter all of those artifacts, activities, and institutions of man which characterize him as a creature of developing intelligence. Man's manual, psychical, and social expressions are cumulative, the results of ceaselessly developing intelligence; those of the other animals are almost entirely stationary, the result of age-long inherited instinct.

The research aim of the cultural anthropologist is fourfold:

First, to discover the mainsprings of development and the origins of culture—or, in other words, those things which early characterized man as a developing animal.

Second, to discover the place, cause, and manner of the beginnings of the most important cultural developments. For instance, what was it caused or enabled man to develop from an instinctive animal to an exploiting savage who broke over the faunal barriers which confined all other animals; what caused or enabled certain savages to develop into barbarians with artificial food supply enlarged and controlled by agriculture or zoöculture; what caused or enabled certain barbarians to develop into civilized men equipped with stored-up written knowledge; and, finally, what causes certain civilized men to develop into men of enlightenment, who recognize that the possibilities of their individual development are limited only by their own capacity and by every other man's equal right so to develop himself?

The third research aim of the cultural anthropologist is to study at their typical centers unique aspects of and salient variations in primitive culture.

The fourth aim is to discover the conditions of the decay and loss of forms of culture.

The cultural anthropologist necessarily deals mainly with primitive culture. His final purpose is to tell the entire story of cultural development up to the point where it becomes common historical knowledge. Ultimately he is a generalizer, and uses all legitimate methods to arrive at his conclusions.

PREHISTORIC ANTHROPOLOGY.

Prehistoric anthropology has as its subject-matter the remains of vanished men and cultures. The field of the prehistoric anthropologist is separated from the preceding three fields because his training and methods of work necessarily differ so greatly from the others. His methods are principally archæological. His research aim is generally to learn as far as possible the entire human story of a definite geographical area. If he is successful, he will unearth valuable physical, ethnic, or cultural data. At any time he may be so fortunate as to discover some of the numerous "missing links" of cultures, of races, or of man and his ancestry, and so assist in reconstructing the larger story of the evolution of mankind.

PRESENT STATUS OF ANTHROPOLOGY.

For about half a century modern anthropological work has been carried on in the areas under consideration. The amount of research accomplished during that time has been rich and varied. Among the most important older institutions engaging in research work are the following:

American Museum of Natural History.	Museo de la Plata, Argentine.
Bernice Pauahi Bishop Museum, Honolulu.	Museo Nacional de Mexico.
Bureau of American Ethnology.	Peabody Museum of American Archaeology and Ethnology.
Ethnological Survey, Manila.	Polynesian Society, New Zealand.
Field Museum of Natural History.	United States National Museum.

There are about a dozen other similar institutions, from whose doors individuals doing research work have gone forth. Chairs of anthropology

exist in eight universities in the United States, in connection with all of which anthropological research work is successfully carried on. Certain European institutions have also prosecuted important researches in the Americas and in the islands of the Pacific, several being especially rich in museum collections from these areas.

PHYSICAL ANTHROPOLOGY.

Physical anthropology has as yet scarcely made a beginning in the Western Hemisphere and the islands of the Pacific. There is only one expert physical anthropologist in America devoting his entire time to this division of the subject. It is gratifying that occasionally others, such as psychologists, neurologists, biologists, and other anthropologists, have been enticed into the field and have made contributions of note.

To render valuable, in comparative study, all anthropological measurements hereafter to be made by experts, America has recently assisted in standardizing a universal anthropometric system.

Physical anthropology has critically examined the claims advanced for the existence of extremely early man in both North and South America. It has made important contributions to our knowledge of the physical characteristics of many tribes of American Indians. It has revealed the inheritance of many normal and abnormal human characteristics, such as pigmentation, malformations, feeble-mindedness, and tendencies to various diseases. Studies have been made of European immigrants, showing certain physical modifications apparently due to environment. In the study of children, especially adolescent boys and girls, the science has gone far and has reached conclusions of permanent and wide influence.

Scarcely a museum exists in America which has not osteological specimens of the American Indians, so that large amounts of such materials are assembled in their local life-zones. In the United States National Museum there has been accumulated not only the best collection of physical anthropological material in America, but one of the best in the world; the collection bids fair soon to eclipse all others.

ETHNIC ANTHROPOLOGY.

Large things have been accomplished in ethnic anthropology among primitive people in the areas under consideration. Many typical tribes in many of the linguistic stocks of natives have been studied and described, some of them more or less thoroughly, like the Arapaho, Eskimo, Hupa, Iroquois, Maori, etc. A great many others have been described superficially or fragmentarily. A large mass of reliable descriptive data is therefore ready to contribute to the solution of the larger anthropological problems.

The linguistic affinities of the hundreds of tribes north of Mexico have been determined, with only a tribe now and then in question. The geographic range of the linguistic stocks north of Mexico has been determined and mapped. The migration routes of a few linguistic stocks have been

traced from their original areas of differentiation. The linguistic stocks of Mexico, Central America, and the Pacific islands are commonly agreed upon, together with their present geographic distribution. For South America the problem has not yet been conclusively settled; but there is agreement that about four-score linguistic stocks exist there, though the geographic distribution and component tribes of several stocks are still matters of conjecture. There has just been published in the United States a map presenting the present status of our knowledge concerning the distribution of linguistic stocks in that continent.

Extensive ethno-cultural areas have been outlined, covering in substantial detail all of the tribes of America north of Mexico and also the Philippine Archipelago, and with less complete detail covering much of the remainder of the Western Hemisphere and the Pacific Ocean. In some parts of South America and the Pacific islands almost nothing is known of such areas.

A great final work in ethnic anthropology in America is the "Handbook of American Indians," published by the Bureau of American Ethnology. It is a compilation or encyclopedia of data covering descriptively the entire life, as far as known, of the native peoples of America north of Mexico. It is authoritative and will endure.

Vast stores of museum specimens have been gathered from the native peoples of the Western Hemisphere and Pacific islands. These specimens are scattered well over the earth, though there is a tendency for the large museums to possess the most important collections from the peoples in their own areas. For instance, Honolulu has the best Polynesian collection in existence. The store-rooms of the large museums of the Western Hemisphere are literally packed with native materials illustrating practically all phases of aboriginal American life. As is true of the printed, illustrative, and manuscript data, so it is of all museum materials: they are saved, are invaluable, and are ready to contribute to the solution of the larger anthropological problems as well as the smaller local ones.

CULTURAL ANTHROPOLOGY.

Only a few anthropologists in America have interested themselves in attempts to solve cultural beginnings, or marked transitions from simpler culture grades to more complex ones. A large part of the work thus far has been ethnic, and descriptive of cultural expressions. However, certain constructive studies of cultural beginnings have been completed which are of more than local import and show that the cultural anthropologist already has asserted himself seriously in the Western Hemisphere.

Tools and weapons of stone were a wonderful invention of the savage; they improved upon hands and teeth for tearing, piercing, and cutting, and upon fists for striking heavy or crushing blows. It has been shown in America how the shaping of such fracturable stones was accomplished by the savage. There were serious handicaps in the uses of fracturable stone (or

metal) artifacts; their sizes and forms were greatly limited. So a very important step forward was taken when men learned how to make their needed tools and weapons from malleable metals, such as copper and iron. This forward step from fracturable to malleable metals has been discovered in America. The importance of these two inventions can scarcely be overestimated, since they lead directly to the apparently endless development of metal crafts. Here one of the so-called "keys to history" has been discovered.

Maize, one of the most valuable cereals in the world, has been traced in its geographical origin in ancient times to the highlands of Mexico or Central America. Cultivated "wild rice" has been studied, and its development traced from the wild, unharvested fields. Other agricultural beginnings are being discovered to-day, though in early agriculture, as in most other primitive economic activities, the studies of beginnings are yet to be made.

There are some forms of objects and some decorative designs which are universally recognized as beautiful. The origin and development of some of these æsthetic inventions have been traced from the crude savage of the Americas and of the islands of the Pacific.

Early religion has been traced in America to a simpler systematic stage than that of universally recognized animism, which was previously considered the earliest systematic form of religion.

The studies of language in America now publishing are acknowledged the best studies of primitive linguistics ever attempted. They will, beyond doubt, be among the best studies in cultural anthropology in their time. In America there have been published a study of pictography and a book on the beginnings of writing. In the Western Hemisphere written language may be studied in the pictograph, the ideograph, and the phonetograph or the presentation of the conception of a sound by means of a picture. In other words, the beginnings of written language have been found as highly developed as word-sounds and perhaps even syllable-sounds, though not sounds of letters as in a modern alphabet.

These studies, taken from among the most important in cultural anthropology, reveal the richness of the field. Most of the important work of the cultural anthropologist belongs to the "larger problems" of anthropology and can best be done after stores of data have been gathered for comparison and final conclusions. As has been noted, much material concerning artifacts, activities, and institutions is now available.

PREHISTORIC ANTHROPOLOGY.

Generations now vanished have left interesting remains of their culture over extensive areas of the Western Hemisphere and the Pacific islands. The investigation of vanished peoples and cultures in the Pacific islands has been slight and fragmentary, not having progressed far enough to solve any of the problems. In the Western Hemisphere thousands of mounds of various types have been examined, and the much-disputed question of the

mound-builders has in this way been settled. They were the ancestors of the present-day American Indians, and some aspects of their culture have been continued until to-day.

The fables about the cliff-dwellers have been corrected. Many dwelling-places have been studied, and often surprisingly minute details of cliff-culture have been revealed. Those people were the kin of the pueblo inhabitants of to-day. The geographical range of the ancient pueblo culture has been outlined and its sedentary agricultural life by irrigation has been in part revealed. In attempting to disclose the connection between this ancient and modern pueblo culture, one may say that the ancient culture is rather like the worn and broken end of a tapestry; a part of the fabric is serviceable and in hand, while the ancient end only now and again reveals the connecting threads.

Still farther south, in central Mexico, the romantic Mexican culture which set all Europe ablaze with stories of its untold hordes of precious metals and its marvelous heights of culture, is popularly and superficially known, largely through the Aztec people.

For more than twenty years exploratory work has been carried on in the area of the ancient Maya of southern Mexico and Central America. Many facts have been gathered about the migrations, architecture, sculpture, painting and writing, food and clothing, religion and social life of this people, probably the most advanced ethno-cultural group of aborigines in the Western Hemisphere. Reconnaissance work among them has progressed so far that the larger anthropological problems may now be confidently undertaken.

Work somewhat similar to that among the Maya, though less extensive, has been done among the ancient Inca of the South American Andes area. That culture was marvelous in many ways. In governmental system, zoö-culture, and geographic extent, covering as it did well the length of Peru and Chili, the Inca culture was unrivaled in the Western Hemisphere in pre-Columbian times.

One of the most satisfactory pieces of prehistoric anthropological work ever carried on in the Americas is that completed in 1912, when the ancient Peruvian capital "Machu Picchu," called the "cradle of the Inca empire," was so successfully rescued from the destruction of nature. The large problems of the Inca, like those of the Maya, are unsolved.

Enough work has been done on shell-heaps, gravels, caves, rock-shelters, etc., in the Western Hemisphere to interest all anthropologists in the problem of man in America at a period earlier than any commonly agreed upon. In Argentine problems have been raised in the beginnings of mankind which are to-day the center of world-wide scholarly controversy.

RESEARCH PROBLEMS AND OPPORTUNITIES IN ANTHROPOLOGY.

THE PACIFIC ISLANDS.

Expansive as is the area of the Pacific Ocean, it is the seat of a unit, though complex, anthropological problem, namely, that of the origin and spread of the Pacific islanders and their culture. Fortunately this large problem must be approached and solved through its smaller separate problems, each largely confined to a distinct ethnic type. The large problem of the Pacific islands will remain with us until the problems of these several ethnic groups have been solved separately and also in their numerous inter-relations. There are five of these ethnic groups: Polynesian, Melanesian, Micronesian, Malayan, and Negritic.

POLYNESIA.

Polynesia is the best-known island area of the Pacific and has been the most thoroughly studied scientifically. Polynesia extends southward from the large Hawaiian Archipelago and embraces the smaller Cook, Austral, Society, and Tuamotu Archipelagoes, and again the Samoan, Tongan, and Marquesan Archipelagoes, with Easter Island lying alone far to the eastward; lastly, the large group of islands, far to the southwest, called New Zealand.

Over all these islands a single race, the Polynesian, has spread. So far as history or reliable traditions tell, it was the original race in that area. There are some stories of an early dark race and, as will be presented later, some unknown vanished people once resided in several of the Polynesian islands, leaving there gigantic stone remains which, sphinx-like, have not yet told the mysterious story of their creators.

The Polynesians are a brown-skinned people with dark wavy hair, statuesque in bearing, and often with straight Caucasian-like features. They have an elaborate oral history, including much information which has been reduced to writing by several able students. In speaking of this history, Churchill says, in contrasting the Polynesians with the Melanesians:

"In the case of the brown Polynesian race the circumstances are far other. We have ample traditions of migration, we have the names of halting-places; we find a whole race, widely sundered upon the sea, looking back to the west with a single gaze to an ancestral home."

All authorities agree that in comparatively recent times the Polynesians came to their present area from an earlier home to the west. Of their origin, and of their migration before they entered Malaysia, from which they went eastward, theories are legion; the problem is yet unsolved. Keane, struck by their physical resemblance to the so-called Caucasian type of Eurasia, makes them a branch of that division of mankind which in neolithic times migrated from the Asiatic mainland to the Indian Archipelago; Giuffrida-Ruggeri regards this similarity as due to independent mutations in their respective habitats. Brinton considered them a branch of the Malayan stock. Bopp

believed them to have sprung from the same original stem as the Indo-Europeans; Max Müller claimed for them Turanian affinities, and recently Macdonald has championed a theory of Semitic origin. The Ganges Valley is their primeval home, according to J. R. Logan and S. P. Smith. E. Tregear says they originated either in India or in central Asia, and passed through India, from which they took to the sea, journeying eastward through the Malayan Archipelago.

Churchill recently has largely solved the Polynesian migration problem in the Pacific Ocean. These diverse views on Polynesian origins and migration are presented here to show how varied have been the theories about the Polynesians, concerning whom more is known than of any other Pacific island peoples. Even Churchill's study has left unsolved the origin of the Polynesians and their migrations before they entered Malaysia, as well as the origin and migration of the entire Tongafiti swarm of Polynesians. "This much is certain," he declares, "the Tongafiti migration has left absolutely no trace of its passage in Melanesia." Whence, then, did they come? The answer must be left for further study.

There are many unsolved problems of Polynesian culture. Where and by whom were their cultures originated? Among these phenomena are those of tabu; of hereditary aristocracy which developed such superior men as Kamehameha III and left us our present Hawaiian royalty; there are important agricultural beginnings; and those of zoöculture, perhaps founded on royal decree to spare certain birds from which were obtained the brilliant feathers woven into royal robes.

Among the interesting cultural discoveries perhaps possible in Polynesia is one which so many students have said can not be attained, namely, "a true knowledge of the genesis of the speech of man." Churchill says that the Polynesian languages are of "the most elemental character" whose "parts of speech have but just begun to make their appearance." He even says positively: "we find ourselves engaged with a language family in which we can discover the beginnings of human speech."

In Polynesia the student is brought face to face with frequent decay and loss of culture forms. Among such cultural features is the almost complete absence, amid many other evidences of advanced culture, of such arts as pottery and weaving, and the occasional loss of the art of navigation in a race otherwise more completely naval than any other. In many coral islands the absence of suitable pottery clays is sufficient to explain the absence of the art of pottery, but this explanation will not answer in New Zealand, where there is excellent clay. Neither may the loss of weaving there be explained by the absence of textile fibers, because such fibers are abundant. The Polynesians of Easter Island are said to be devoid of canoe-craft. Absence of suitable growing timber in Easter Island may explain largely the loss of this central cultural factor of the Polynesian people there, though American-grown cedars drifting in the open sea furnished the material for the large war canoes of the

Hawaiian Islands. In Mangareva, where the art of canoe-craft has been lost, there is an abundance of timber in the mountains, and a protecting reef gives advantages of a quiet harbor which should have developed navigation. Such conditions offer opportunities to shed light on the problems of ethnic psychology.

MELANESIA.

Melanesia includes New Guinea, New Britain, New Ireland, Admiralty Islands, Louisiade Archipelago, Solomon, Santa Cruz, New Hebrides, Loyalty Islands, New Caledonia, and Fiji. This group of islands takes its name from its dark-skinned inhabitants, the Melanesians. The people living in New Guinea are also called Papuans, a Malay word meaning frizzly-haired. Some authorities make a distinction between the Papuans and the inhabitants of the rest of Melanesia. As a collective name Keane suggests "Papuasians."

The Melanesians are dark, often black in skin color, with thick lips and woolly hair. They greatly resemble certain African Negroes.

Practically no large Melanesian problems have yet been solved. The fundamental question "Who are the Melanesians?" remains unanswered. Are the people an easterly migrating branch of African Negroes? Or are the latter a westwardly migrating branch of the Melanesians? Are they both remnants of a much more extensive group of black men which occupied Africa, Melanesia, and intervening areas? Or are the Melanesians an indigenous group with skin and hair similar to the Africans, yet a group independently evolved? Are they greatly like the Africans, or would a scientific study prove the two only superficially similar?

Keane regards all of Oceania as the original range of the Melanesians now restricted by the intrusion of the Polynesians. Some conceive New Guinea as the possible center of Melanesian dispersion. It seems fairly well agreed that the Melanesians were the earliest inhabitants of the region they now occupy. However, is it not possible that the Melanesians are an amalgamated product of some (at present unidentified) peoples with the existing primitive Negrito, the small, frizzly-haired man found in the Philippines and believed to be the aboriginal inhabitant there, and who lives also in New Guinea, Malay Peninsula, Sumatra, and the nearby Andaman Islands?

The typical physical, temperamental, and cultural characteristics of the Melanesians must be compared with those of other groups in an effort to solve the now open problem of this fiercest and most savage of all Oceanic peoples.

One of the most important large cultural problems which study of the Melanesians may assist in solving is that of cannibalism. Were all men cannibals in the early natural exploitation stage of their development, eating the people they killed as they ate other animals? Ward thinks so. Or was cannibalism largely a local matter due to other conditions, such as absence of large food-animals?

MICRONESIA.

The islands called Micronesia lie well scattered to the east and south-east of Japan. They are the Marianne or Ladrone Islands, together with the Pelew, Caroline, Marshall, Gilbert, and Ellice groups. The inhabitants are known jointly as Micronesians, and are a hybrid people. Physically and culturally they stand between the Polynesians and the Melanesians. Tradition points to migrations from both the east and west; the former migration is said distinctly to have come from Samoa, hence is Polynesian. The migrations from the westward are said to have been more numerous; they are believed to have been largely from the Philippines and islands farther south, and to have been subsequent to the Polynesian immigration. Thus they were Malayan in large part, if not entirely.

Though the Micronesians differ in appearance in the various island groups, depending upon the proximity to or contact with neighboring peoples, they should probably be considered to-day as of Malayan stock, which modified the early Polynesian settlers and which in turn was probably modified in historic times by Melanesians and even Japanese and Chinese.

The Micronesian languages are as complicated as is the ethnic composition, and they have been studied but little. This "melting-pot" of the Pacific offers, among other problems, a good field for research in ethnic amalgamation and cultural assimilation.

MALAYSIA.

Malaysia includes the Malay peninsula of continental Asia, and the vast island world of Sumatra, Java, Borneo, the Celebes, the Philippines, Formosa, and many smaller islands. This area receives its name from the small Malay group or tribe, the last of many swarms of people now widely scattered under the name Malayan. People speaking the Malayan language have gone far beyond the bounds of Malaysia. They went northward to southern Japan, which was heavily impregnated with Malayan blood, and again they migrated to the westward across the Indian Ocean to Madagascar, off the southern part of the east coast of Africa. What was the cause of their early remarkable pioneering instinct?

Much discussion and controversy have been waged about the Malaysians. Who are they? Where did they come from? What are their ethnic characteristics? They were formerly regarded as merely an offshoot of the Mongolian stock; this view was upheld by Wallace, and is the one most commonly taught in American colleges to-day. Others, especially those who know them personally, believe them to be a distinct race, some regarding them as the most recent of all the great races, and insular in origin, not continental. The Polynesians were formerly believed to be a branch of the Malaysians, and the Oceanic languages are still commonly called "Malayo-Polynesian." It has recently been established that the Polynesian is the older language, and the two peoples are radically distinct linguistically.

Among the large group of unsolved problems which Malaysia presents is that of the so-called Indonesians. Is there an Indonesian strain in Malaysia, or are the brown men there members of one stock scattered from the same parent nest successively after repeated cultural developments? This is a working hypothesis.

Besides the general Malayan problems of origin, migration, language, and material culture, there are specific problems in the Philippines of great practical importance to America. It is an historical fact that no pure Malayan people of their own initiative have attained any considerable development. The most highly developed were the Mohammedans, the "Moros," of the Philippines; but the germs of peaceful progress were not in them and are absent to-day. Their historic turbulent restlessness was not Malayan in origin, but was due to the personal genius of Mohammedan Arabs, who now, as 450 years ago, easily secure and hold leadership among them. What are the facts as to inherent qualities of leadership among pure Malayan peoples?

Another practical anthropological problem in the Philippines is that of the relative fitness for physical and cultural development of the Filipino of pure Malayan stock and the one of mixed Chinese blood. This is not an academic question. It is one whose solution should assist in settling problems of Philippine immigration.

Before leaving Malaysia we may briefly suggest three additional problems which are not specifically incorporated in the large Pacific island problem, but which, since their research field is located in Malaysia, must be studied there.

Malaysia is believed by some anthropologists to be the cradle of mankind. In 1891-92 Dubois found in eastern Java certain fossil bones of an animal scientifically known as *Pithecanthropus erectus*, or erect apeman. As to the exact zoölogical position of this animal, anthropologists have divided into three groups, each group, on account of its personnel, meriting equal confidence. One group claims the animal as a true man, another regards it as a gigantic anthropoid ape, and the other takes the middle ground of the "missing link." The question is still open. The extensive rocks in which Dubois found these fossils contain those of many animals. Digging Trinil rocks for additional fossils of members of the same species as *Pithecanthropus erectus* is an uncertain undertaking; but presumption is in favor of the belief that sufficiently extensive excavation would reward the endeavor, in spite of the failure of the Selenka expedition to make such discoveries. It matters not whether this creature proves to be, as so many think, the earliest discovered proto-human being; the real problem is to determine what its kinship with man is, and then determine at what geological age such creatures lived. To the anthropologist neither time nor labor would be considered wasted, if this twofold question could be conclusively solved for the expectant world.

It is an ethnic law that the most restless and vigorous migrating peoples go farthest from their nest. In consequence, one ought to find, unless they have perished, primitive and backward people near the human nest, wherever that was. Such people are still found in various parts of Malaysia; and in Java there has been noted the most simian-like people known, the Kalang. It is believed that pure-blood members of this group are extinct, but all available data, scant as it may be, should be secured of those persons having Kalang affinities.

Still Malaysia holds the interest of the anthropologist, because one of the four living anthropoid apes, the orang-utan, survives only in Sumatra and Borneo; Java lies between the two. The anthropologist should have a mass of accurate data about this ape. The individual and communal life of this singularly man-like animal should be exhaustively studied, and the anatomist and physiologist should gather a full store of facts before the ape vanishes. Very little data, such as needed, exist to-day.

NEGRITIC TERRITORY.

The last of the five ethnic groups in the Pacific is the Negritic. These people are to-day found bearing different names in several isolated areas, in the Philippines surrounded by Malayan Filipinos, and in New Guinea surrounded by Melanesians. They occur as the Aket in Sumatra, as the Semang in the Malay Peninsula, and also as the Mineopi of the Andaman Islands west of the Malay Peninsula in the Bay of Bengal.

There is little question that the Negritos preceded the Malaysians in whatever areas they both occur. De Quatrefages and others regard them as representatives of the parent stem of which the Pygmies of Africa are a branch. Another theory is that the Negritos are the common ancestors of the African Negroes and the Oceanic Melanesians. Again it has been suggested that the Negritos, as well as the Melanesians, are a branch of the original negroid stock, perhaps African. Keane regards the Negritos as the true aborigines of Indo-China and western Malaysia. The Negritos are regarded by some as closer to the primitive human type than any other existing race. Quite a different view is that of Keith, that "there is no human race known that has so little claim to be regarded as a primitive human type. They are the last race in the world to answer to the criteria required in an ancestral type for modern man." What are these criteria? Evidently there is not agreement as to what constitutes a primitive type. This suggests further research in physical anthropology.

Since the Negritos are fast being displaced by other people, and since their language is practically extinct over much of their present range in the Philippines, problems such as their origin, their former distribution, their kinship to other peoples, their language, and the part they have played in originating culture are most urgent.

One ought only to recall how difficult it is to get at the beginnings of things human in order to see the importance of an exhaustive and comparative study of the Negritos. They are culturally the most primitive Pacific people of to-day, and are perhaps as primitive as any in the world.

PREHISTORIC STONE REMAINS.

Not all of the great anthropological problems of the Pacific are among the living people. One of the greatest world mysteries before the prehistoric anthropologist is that of the carved stone remains found in Easter Island. This island is a small piece of land about 45 square miles in area, lying 2,000 miles from the west coast of South America. Several attempts have been made to solve the riddle of its stone remains, but unsuccessfully.

Churchill, in his recent study of the language of Easter Island, says of these rude masses of tufa-crowned human shapes mounted as termini upon platforms along the edges of the cliff: "Utterly beyond our comprehension, since apparently so utterly beyond the present capacity of the islanders, the enduring memorials of workers in cyclopean stone are preserved in the South Sea." Again he says the natives claim that these gigantic carved rocks are the work of their quite recent forefathers, yet, "despite the tradition, we can not see how a people unacquainted with metals could hew these great masses of hard volcanic rock; nor can we see how, without mechanical assistance of which they had no knowledge, they could lift the weights over the crater rim, transport them for considerable distances, and rear them on end." On these monuments are carved images of men and animals, and also characters which may be picture writing, though all attempts to decipher them have so far failed.

Who were the authors of those records in Easter Island? Some students have been led to ascribe them to early Papuans, because skulls of the type of those people were found at hand. Sir Clements Markham rather inclined to identify the skulls with those of the Aymara of Bolivia. The question is still open. Stevenson was right when he called one of these carved rocks of Easter Island

"the rude monument
Of faiths forgot and races undivined."

Great as is the mystery in Easter Island, the problem becomes larger and vastly more alluring, and perhaps more certain of reasonable solution, when we note that similar carved rocks extend in a broken line from the Carolines and Mariannes, just east of Japan, to Easter Island. Some of the best-known monuments are the massive walls of Metalianum Harbor in the Carolines, rows of pillars on Tinian in the Mariannes, Fale o le Fe'e in the mountains of 'Upolu behind Apia in Samoa, the great trilithon of Tonga, and the scarped mountain erections on Rapaiti.

Who erected these rocks? Was there once a migrating people who crossed the vast Pacific by its longest island route, leaving records of a stone culture which the present islanders do not and apparently never did possess?

If so, did they reach Japan or the continent of Asia? Or did they pass on to South America? No one knows, but the problem is strung along the Pacific, and it fascinates us while it waits.

The diverse Pacific island problem is a unit problem. Scattered as the Pacific peoples are in their numerous island homes, the warm languorous sea, more than anything else, has made them what they are. While the sea separates them, it binds them together. It is confidently believed that this unit problem of the Pacific island peoples can be solved within a reasonable length of time, if it is approached through physical, ethnic, cultural, and prehistoric studies among the five great Oceanic ethnic groups.

THE WESTERN HEMISPHERE.

ORIGIN OF THE ABORIGINAL AMERICAN.

Fundamental among the unsolved large anthropological problems of the Western Hemisphere is that of the origin of man in America. Whence did the ancestors of the American Indian and Eskimo come? The answers have been numerous and varied. Some who believe in the plural origin of the human family regard the American continent as the birthplace of one of the independent branches. Some who believe in the single origin hold that America may be the original home of the human family from which all the diverse races and ethnic groups of the earth sprung. Recently the discovery of certain skeletal remains in Argentina has led to a theory of this sort.

For many reasons, geographical, geological, zoölogical, and anthropological, it may apparently be wisely assumed to-day that man is not autochthonous in America, but that he migrated here from some earlier home.

Several anthropologists believe in the dual or plural origin of our aborigines. Ratzel reminds us that isolation for sufficient time would result in the production of a unit race from two or more ancestral stocks. This is possible by means of amalgamation and the selective influence of environment.

Anders Retzius, on the basis of two types of American crania, grouped the American aborigines in two extensive geographic divisions. The western group he classed with the brachycephalic Mongols and Malays, and to the eastern group he ascribed affinities with the dolichocephalic Berbers and Guanches by migrations from northwestern Africa and the Canary Islands.

Keane also recognizes two primitive types. He traces the dolichocephalic type to a migration from Europe in palæolithic times over a supposed land-bridge through the British Islands, Iceland, and Greenland; the Eskimo, and Botocudo and tribes farther southward in South America are representatives of those migrants. He derives the brachycephalic type, in greater numbers and in several migrations, from Asia in later or neolithic times; certain short-headed tribes in the highlands of Mexico are representatives of this later movement. The remaining aborigines, he believes, are a product of a blending of the distinct European and Asiatic types.

Brinton believed that all of the original stock of the American aborigines were descendants of palæolithic Europeans who crossed the North Atlantic by a land-bridge.

Topinard assumed that American aborigines are the blended product of an autochthonous American branch of mankind and an Asian branch.

Mason propounded a theory of the peopling of America from Indo-Malaysia.

De Quatrefages, in order to explain an alleged "black" skin color on the Pacific coast, introduced a Melanesian element into the aboriginal American.

Several students, especially in Europe, have urged that the Pacific peoples early came to America and that the highest culture of pre-Columbian times was theirs. On the other hand, Ellis, an early authority on Oceania, looked to America for the peopling of the Pacific. From our present knowledge of the recency of Polynesian migration such a view is untenable as regards the living population. But, as already suggested, it is possible that the prehistoric people with the strange stone-culture of Easter Island may have continued eastward to South America. The data accumulated in the exhaustive study of the subordinate problems of the Pacific islands, already presented, may very reasonably be expected to contain evidence of acceptable value on the theory of southern Pacific migration to America.

The weight of opinion among American experts to-day is in favor of the theory that the great mass, though not necessarily all, of the early inhabitants of America came from northeastern Asia by way of Bering Strait. Favorable as this theory appears, it is not without its objections; they may not be unsurmountable, yet need to be overcome. Among those objections are questions of cultural development, of acclimatization, and perhaps of physical differentiation.

Some students believe that the Aleutian Islands, as a possible migration route, merit further research. While in the light of our present knowledge this route has its difficulties, there also appear certain advantages in such a route over the more northerly Bering Strait route. The Aleutian route is part of the horseshoe-shaped littoral stretching up along the Asiatic coast, eastward across Bering Sea, and down the American coast. Geographically and ethnically this littoral is part and parcel of the continental areas which it fringes. This island route might well prove a fertile field for research on the problem of the origin of the peoples of America, and also a fertile field for research on the problem of the Pacific islands, under which head it might logically have been presented. It is confidently expected that such a survey would reveal osteological material and probably also artifacts that would show clearly certain important facts of the race and culture which early found its way to America, and about which we already have too much conjecture. Such insular investigations as just suggested should be only the connecting link between the most thorough research on the bordering continental areas, especially the Asian area.

If man is a migrant to America, he probably tarried for a considerable time along the sea-shore. Rock-shelters and caves there should be explored. Shell-heaps or "kitchen-middens," as they are sometimes called in Europe, so plentifully scattered around the entire coastal fringe of the Western Hemisphere, should be carefully studied for what data they may reveal of man's early, or earliest, migration routes to America. If the problem should prove to be primarily that of autochthonous man, researches should be conducted in those areas where strata are found carrying fossils of animals most likely to have been contemporary with such man; for instance, in the Pampean formations of South America, where already alleged discoveries of very ancient man, and even prehuman ancestors of man, are said to have been made.

The many theories of the origin of man in America show that the foremost students of anthropology have been interested in the unsolved problem at hand, and their diversity shows the need of a solution.

THE ESKIMO PROBLEM.

A special problem, a unit in itself, in connection with that of the origin of the American aborigines, is that of the Eskimo. It is commonly agreed that there are to-day distinct physical and cultural differences between the Eskimo and the Indian. Are the Eskimo a variant of the American type? Or do they represent the ancestral stock of the American Indians, the Indians being the variants? Are the Eskimo representatives of one of the ancestral stocks of the Indians, or are they a distinct race in origin? If so, when did they come to America, and from where did they come?

It has been suggested that if man were in the Western Hemisphere in glacial times, the Eskimo may be direct descendants of a geographical division of those early men who have remained glacial, while the Indians are descendants of those who were driven southward and westward by the glacier. Their long separation by the ice might account for the marked physical and cultural differences between the two peoples. Others classify the Eskimo with the present-day people of northeastern Asia, with the implication that they are more recently and immediately derived from Asia than are the Indians. Recent researches have shown that while indisputable evidence exists connecting the people on both sides of Bering Strait physically, linguistically, and otherwise culturally, the evidence points strongly to an ethnic and cultural movement from America to Asia. The Yuit of the west shores of Bering Strait are a branch of the Eskimo stock which in recent times migrated from America to Asia. Boas has formulated the theory that "the so-called Palæ-Asiatic tribes [Chukchi, Koryak, etc.] must be considered as offshoots of the American race, which may have migrated back to the Old World after the retreat of the Arctic glaciers."

There is still debate as to the original American nest of differentiation of the Eskimo, provided his physical and cultural characteristics were fixed in America. Rink placed it in Alaska; many American anthropologists assign

the nest to the area west of Hudson Bay. Another aspect of the Eskimo question is the effect of contact with the Norwegian expeditions to America and settlements in Greenland which lasted 400 years. The recent discussion concerning the origin of the "blond Eskimo" and various features of Eskimo culture ascribed to Norse influence suggest researches which might yield valuable facts about pre-Columbian relations between Europe and America.

It would seem that the Alaskan and other shell-heaps and ancient village sites in the Eskimo area ought to reveal evidence of value in assisting to solve not only the Eskimo problem but the larger problem of the origin of the American aborigines as a whole.

ANTIQUITY OF MAN IN AMERICA.

Inseparable from the problem of the origin of the American aborigines is the problem of their antiquity. Controversy has been waged on the question of antiquity even more than on that of origin, and a lesser degree of agreement exists on this question among those who claim to speak with authority. The chief point at issue is whether man existed in America in the geological period covered by the glacial invasions of North America. It is definitely known that man lived in western Europe during the period of European glaciers. Many students hold the belief that man was also in the Western Hemisphere in pre-glacial or glacial times. The evidence adduced for such belief may be classified as (1) direct, (2) indirect or circumstantial. By direct evidence is here meant the discovery of indisputably human artifacts or remains of man himself, which can be decisively proved to be of glacial or pre-glacial antiquity. Geology should decide the age of the formation in which the remains are found. Physical anthropology should speak with authority about human remains. Cultural anthropology should speak in case the remains are artifacts, since there should be an interpretation from the point of view of culture history.

For nearly three-fourths of a century human skeletal material has been found which has been ascribed to glacial antiquity and even pre-glacial antiquity. Several of the finds, as the Calaveras skull, the Trenton skulls and femur, and the Kansas and Nebraska finds, have been widely discussed. The names of many eminent anthropologists and geologists are found on the roll of those who have adhered to the opinion, often amounting to conviction, that these discoveries prove the existence of man in America in the Quaternary age. Others, perhaps a larger number to-day than before, remain unconvinced. The latter view may be summed up in the words of Hrdlicka:

"Thus far on this continent no human bones of undisputed geological antiquity are known. This must not be regarded as equivalent to a declaration that there was no early man in this country; it means only that if early man did exist in North America, convincing proof of the fact from the standpoint of physical anthropology still remains to be produced."

In South America fossil remains have been found which have created even greater interest and discussion than those of North America. Remains found in Argentine were adduced as evidence not only of the existence of early man but of the existence of prehuman ancestors. South America was regarded as the original home of mankind, and several European anthropologists have accepted, wholly or in large part, the conclusions of the Argentine advocates of this theory. But there are those in the United States, speaking with authority, who say "the evidence thus far furnished fails to establish the claim."

Artifacts have also been found in both North and South America which have been regarded as from the hands of Quaternary man. Especially famous are the finds in the Trenton gravel in New Jersey. These artifacts, like the skeletal remains, have been convincing proof to many American and European students. On similar grounds, as in the case of the skeletal remains, probably the majority of anthropologists are unconvinced of the great age of any artifacts so far discovered in the Western Hemisphere.

Indirect or circumstantial evidence has been adduced for and against the probability of man's existence in the Americas in geologic antiquity. The greater part of this evidence favors the probability of his early existence. Among the facts cited in favor of belief in the expiration of a great extent of time since the occupation of America by the aborigines are the following:

- (1) The unit race extending from Alaska to Tierra del Fuego.
- (2) The numerous distinct cultural groups.
- (3) The remarkable and unparalleled linguistic diversity.
- (4) The evident northward trend of migrations over areas once glaciated.

This condition is best explained by the presence of some formidable barrier, upon the removal of which the tribes released sprang northward.

(5) The relative fewness of linguistic stocks in the north and east as compared with the Pacific and Southwest areas, where so many small stocks have remained penned up.

(6) The radical differences between the Indian and the Eskimo, over whose extensive area of distribution the people physically, linguistically and otherwise culturally are very similar. Has not the Eskimo survived as glacial man in his area of snow and ice?

Against the probability of a very early occupancy of America may be cited the following circumstantial evidence:

(1) Man probably originated in the tropics, where the anthropoid apes are found to-day, and his food was largely vegetable. Such a man would not willingly migrate into inhospitable lands where his mode of life would be greatly changed. Man did not migrate until compelled by pressure of numbers on the food supply.

(2) Under the most generally accepted theory of migration, by way of northeast Siberia, a degree of culture was necessary, implying skill as hunters

and fishers and knowledge of the use of fire and suitable clothing. Such cultural development required a long period of time.

Thus the problem of the antiquity of man in America remains an open question. Holmes says it is "a difficult, a perplexing, but a most fascinating field for research." To solve this problem there must be thorough and systematic investigation, greatly prolonged if need be. The aim should be to discover physical or cultural remains which would demonstrate conclusively to impartial students the age when man was in the Western Hemisphere.

On the theory that man is a migrant to America two separate researches are needed to solve the question of his antiquity:

1. The first research concerns the general question of man's antiquity in America and is inseparable from researches into the origin of American aborigines. Nearly the entire coastal area of the Western Hemisphere is well supplied with shell-heaps which were made by men so primitive that a large part of their food came from the sea shore. In such shell-heaps are found numerous evidences of the culture-grade of the builders. Probably grades of culture, rather than geological chronology, would be revealed by most of the shell-heap explorations. Dall found shell-heaps in the Aleutian Islands which clearly told of men of three distinct culture grades who had eaten there. First was a people who apparently had neither fire nor artifacts, and whose food was echinoderms; then followed men of superior culture who ate mainly fish; lastly, a people with culture not so unlike that of recent coastal savages. However, records of geological time may be found happily, perhaps, with artifacts or human skeletal remains, for Lovisato says that the shell-heaps of Elizabeth and other islands at the extreme southern end of South America show a subsidence below the sea and again a rise above the sea since they were first deposited by men.

There should be an exhaustive exploration of shell-heaps; first, at those points where it would seem, from the configuration of the continents, island routes from other lands, the drift of ocean currents, atmospheric streams, etc., early man might have reached America; also where conditions would seem to have favored early men with plentiful food and easy protection. In the neighborhood of all such shell-heaps careful survey should be made for caverns, rock-shelters, and promontories which might have been used by men at the time; these should also be explored. The results of these researches would dictate whether other coastal areas should be similarly searched for data of man's antiquity.

The importance of shell-heap exploration in work on this research is suggested by Boas: "It seems plausible that the antiquity of man on the South American Continent is very great, and that in the large shell-heaps which are found, particularly on the Atlantic coast, his remains may be traced to very early times." We may also well recall here the conspicuous part played by explorations of shell-heaps and kitchen-middens in the

European Continent, where the knowledge of ancient peoples surpasses in completeness and exactness that of any other part of the world.

2. The second research should be primarily to solve the specific problem of so-called glacial man; to determine whether man was in America in glacial or pre-glacial time. If no evidence is found, the researches should be so capably carried on that the absence of non-autochthonous man from America in the above-named geological times would be satisfactorily proved to all except those who would believe the other way. The inherent difficulty of proving a negative is here in mind.

In Europe the evidence of glacial man is abundant. Both the skeletal and artifact remains are found at the very foot of the glaciers, and even on promontories which, though not covered, were within the glaciated area. When one sketches on a map of the United States the locations of those skeletal and artifact remains over which the controversy of glacial man largely exists to-day, he finds, suggestively, that most of them, except those from California, are located in the zone of glacial terminal moraines extending from the Atlantic westward toward the Rocky Mountains. This strongly suggests an important field for research. The zone of the terminal moraines should be surveyed for all those available localities which in pre-glacial or glacial times could well have furnished dwelling-place or occupation ground for man. All caves, rock-shelters, glacial river-beds, exposed beaches, and promontories which could have served as hunting-grounds or sites for look-outs or dwellings should be systematically investigated for coveted evidence of possible glacial or pre-glacial existence. The most trustworthy evidence of man's existence would be found in the undisturbed glacial deposits, or in interglacial deposits. It must be understood that the location of man's remains in glacial deposits proves only the existence of man, not the geographic location of such existence; whereas, remains in interglacial deposits afford definite knowledge as to location and time.

The chief reasons why we in America, as compared with Europe, are in such a state of uncertainty about early man in our continents are: first, the lack of systematic and extended research; secondly, the ignorance and carelessness often shown in connection with discoveries which have been made. In the majority of cases the lack of accurate information given by the discoverers is the most striking thing about them. A case in point is that of the skeleton found in Quebec, said to have been "dug out of the solid schist rock," which proved to be a Silurian formation!

Geologists and physical anthropologists have worked out certain criteria for determining the geological and zoölogical position of human fossil remains. All these criteria should be critically applied to every individual case by experts on the spot. Otherwise some feature or relation of the relic or its surroundings may be overlooked or misstated, thus rendering worthless, or forever doubtful, the whole discovery.

ORIGIN AND SPREAD OF ABORIGINAL AMERICAN CULTURE.

There are students who admit the migration of early man to America, yet hold that for all purposes American culture is autochthonous; Powell believed that man came to America before he had acquired articulate speech. Other students, who hold the idea of great antiquity, even autochthony, of the American aborigines, believe there is evidence of the influence of Old World culture in America in pre-Columbian times.

A dogmatic assertion of the complete autochthony of American primitive culture would appear premature in view of our present insufficient knowledge. The foremost living student of primitive American culture says: "It seems highly probable that the western world has not been always wholly beyond the reach of members of the white, Polynesian, and perhaps even the black races." Among the similarities in culture-form which are the most striking and have the greatest presumption of transmission are the gouge or stone adze and the banner stone of New England and farther north, which resemble those of northern Europe; forms of pottery and implements in the West Indies and Brazil, which resemble manufactures of the Mediterranean region; certain objects in Panama, which suggest the metal works of Benin, in Africa; correspondencies between the architecture of Yucatan, and those of Cambodia and Java; and adzes and pestles of the American northwest coast, which resemble those of the Pacific islands more than those of eastern America. These and like phenomena should be made the objects of painstaking research on the problem of the extra-American origin of culture. The solution of this problem would contribute not only to the present subject, but to the anthropological world-problem of culture similarities—whether similar cultural expressions in isolated areas had a common origin, or independent origins, or are due to transmission.

Though research may prove the extra-American origin of parts of the culture of the American aborigines, it seems probable that most of that culture originated in the Western Hemisphere. Some of these beginnings of culture have already been found, as has been noted, but most of them are still unknown and await research. America "can be expected to furnish a fuller reading of the early chapters of human progress than any other part of the world."

In the spread of culture the Western Hemisphere holds several problems of almost continental extent.

Boas speaks of the large fundamental problem of the "peculiar unity of culture types" seen among the tribes extending from near the extreme north to near the extreme south of the Americas.

There is the problem of the relations between the various American culture centers.

Studies of culture-spread between the different tribes in contiguous or nearby areas, such as are now being worked out among the tribes of the Great Plains, should be prosecuted broadly.

These last three problems should be studied with trade routes, hunting routes, fishing routes, and war routes in mind.

The problem of the Antilles line of culture contact between South and North America is an important one; so also is that of the presumptive line across the Gulf of Mexico. Both these route-areas should be studied, but the major part of the research work would need to be done among the cultures, vanished or present, on the two continents at both ends of each connecting island route. Among these peoples are living tribes whose culture is entirely unknown, whose names even are unknown to anthropology.

Among the prehistoric culture remains in the Western Hemisphere are some of wonderful richness in the ruins of the advanced peoples in the highlands of Mexico, Central and South America.

If it were not for the accompanying extensive report on the Maya of Yucatan by Mr. Morley, it would be necessary to present in a much larger way research opportunities among those advanced and marvelous cultures to the south of us, which were suddenly blighted by Spanish conquest.

There is the question as to whether Maya or Mexican culture was responsible for the beginning of the high development of their area, or whether both raised themselves on the shoulders of a third, to use Seler's expression. According to this authority, the two unquestionably had mutual influence.

The relationships between the Inca and Aymara cultures of South America, and the meaning of the general resemblance between these cultures and those farther northward, as the Maya and the Mexican, are problems of great importance and about which nothing is now definitely known.

The culture of the Inca of Peru and Chili, that of the Aymara of Bolivia, the Mexican of central Mexico, and the Maya of Yucatan and Guatemala should be thoroughly studied; among them all are rich research opportunities similar to those Morley presents for the Maya. A comparative study of the cultures would be most enlightening. The excavation of the Inca capital, Machu Picchu, needs only to be mentioned to convince the anthropologist that South America has many small and many large prehistoric problems demanding serious study. Some of the important Inca sites in which valuable research work could be carried on are Tiahuanaco (Keane calls this an independent Aymara development); then the very important Sierra ruins; those of Cajamarca, Chan-Chan, Nasco, Piura; the ruins of the Cuzco region and of the unknown Moquequa region. These are virtually untouched fields.

One of the avenues open to research on the problem of the spread of American culture is that of American and European archives. Many letters were written and sent back to Europe by Europeans contemporary in America with the last days of Mexican, Maya, and Inca culture. Several beautiful Maya books have been found in European countries, and doubtless research would bring to light a considerable amount of valuable data.

The whole problem of the origin and spread of aboriginal American culture is varied and large. While this problem would necessitate much research

in the field, valuable conclusions could be arrived at in the interpretation of data already at hand in libraries and museums. Work that would bring important results could be begun in almost any part of this large problem.

AN AMERICAN CHRONOLOGY.

The field of American anthropology has neither geological nor cultural measure of time, except the Columbian. A definite chronology is one of the great needs of the science.

In Europe prehistoric culture-history is measured by the eolithic, palæolithic, and neolithic stone ages, each of the last two being subdivided into several definite epochs; and, later, by the age of the malleable metals. The fossil bones of man are sometimes found in positively identified geological strata. It has been possible to coördinate these cultural and geological chronologies so that there is at hand a sufficiently exact measure of the time element in the evolution of man in Europe.

It is greatly hoped, and may be confidently expected, that work on the four large problems just presented would reveal such facts that a chronology of the evolution of man in America would be the result.

MODERN PROBLEMS.

It must not be supposed that the anthropologist is limited in his interest and his field of work to man's evolution of the past. He knows man is still in the making. He studies man's present-day evolution in its individual and ethnic aspects. He makes his studies of both the past and the present, with an eye to the future, in order that those things which vitiated or benefited the evolutionary process in the past, and which vitiate or benefit it to-day, may serve as guides for future generations.

The field of anthropological study of modern people is new and unoccupied, only the barest beginnings having been made. The horizon of this coming field for research among present and future man and ethnic groups is seen to extend indefinitely into the future. It would be difficult to overestimate the practical value of these continued studies. Their utility would be world-wide.

First and most urgent among these modern studies, to quote Hrdlicka, "is the gradual completion * * * of the study of the normal white man living under average conditions, and the complete range of his variations—these facts to form a solid and sufficient basis for all comparisons." This study should cover thousands of cases and should be as continuous as possible from birth to death.

The other so-called races of man should be studied.

All typical variations of man should receive careful investigation.

All different typical environmental groups should be studied thoroughly.

Blending or hybridizing groups also should pass under the eye of the trained investigator.

These researches must be carried on in a strictly scientific manner, with accurate and abundant observation, then classification and comparison, and eventually hypothesis and demonstrable conclusion.

The Western Hemisphere and the islands of the Pacific offer unparalleled opportunities for useful and practical anthropological research among modern peoples. Here are inhabited areas typical of practically all environments. Here great numbers of persons, from all the large races of man and many of the smaller natural divisions, make their home. The contagion of New World ideas and ideals is such that racial barriers are often lightly held in mind. It is probable that the solidity of all ethnic groups is beginning to crumble in the heat of this great melting-pot.

Three of the most important modern anthropological problems of the Western Hemisphere and the Pacific islands will be briefly presented under the following titles: ethnic heredity, influence of environment on mankind, and human amalgamation.

ETHNIC HEREDITY.

Man, like every other form of life, is a product of the factors of heredity and environment. Heredity in mankind ceaselessly acts to perpetuate the parental characteristics in the offspring, and so successfully that persons recognize at sight a member of any of the great races of mankind, because each member bears such a number of typical characteristics.

Though a number of able investigators are rapidly working out a long list of universally hereditary human characteristics, only anthropologists have investigated the inheritance of ethnic characteristics, and even they have scarcely begun.

An ethnic group may be "pure blood" in many characteristics, and so breed true, as other animals may. Such a group of people as, for instance, the Negrito of the Philippines has so long intermarried and so long remained in the same stable environment that only slight visible variations occur.

If, to avoid controversy, it is granted that all ethnic groups on the whole have naturally equal capacity, still no one will claim that ethnic groups do not differ in their characteristics. What are the salient characteristics of important modern ethnic groups?

In the Western Hemisphere study should be made of the normal white man, of the American Indian and Eskimo, and of the Negroes where, because of cultural reversion in Central and South America, they are found in substantially all the conditions they occupy in Africa, and in much superior ones also. There should be studies of the Japanese and Chinese in America, Hawaii, and the Philippines, and of the brown peoples of the Pacific Ocean, emphasizing, if desirable, the inhabitants of our own insular possessions.

For long generations after removal to other areas and even to other environments than those in which hereditary characteristics were fixed, many such characteristics persist and reappear in the descendants. Thus the Irish

lip, the Jewish nose, the Teuton's blue eyes, the African's hair and skin color persist in America. Ethnic characteristics, such as the social instinct of the French, the "love of life" of the German, the conservatism of the Englishman, survive in the American environment. But migration to new environments, and amalgamation or intermarriage between two or more different ethnic groups tend to cause or permit variation from the otherwise normal hereditary types. Studies of the influence of environment and amalgamation on the hereditary characteristics of ethnic groups are therefore necessary.

INFLUENCE OF ENVIRONMENT ON MANKIND.

Man's physical, mental, and moral fitness to meet his environment is the *sine qua non* of his survival.

Human skin color probably offers the most patent illustration of the selective influence of environment on mankind. The dark races have their natural geographic areas of distribution in hot, sun-flooded lands, where the heavily pigmented skin protects the delicate human organism from the destructive rays of the tropical sun. Norway, with so much of its light from the "midnight sun," has favored the selection of blondness or relative absence of skin pigment.

Extremely high and extremely low temperatures weaken the mental powers. The dominant and progressive races have flourished in the earth's temperate climates, not in areas of extreme heat or cold.

Early man, like the instinctive animal, was largely a product of environment. Gradually, however, developing man modified his environment. One may almost say that the majority of man's efforts have been to make his environments what he wishes them to be.

Man has already crossed many of his natural environmental barriers. One of three conditions must inevitably follow such a challenge to nature. Either he must adapt himself to the new environment by becoming modified, or he must modify the new environment to become similar to the old, or he must perish. In apparently flattering measure migrating man to-day modifies his environment through ceaseless effort. There are insuperable obstacles to wholesale modification. The Anglo-Saxon can not make a Temperate Zone of the Tropical. The Scandinavian emigrant to America can not draw a veil across the brilliant sunlight of Minnesota and the Dakotas. The British race in India has modified the environment only in spots. There is no knowledge that the race is being successfully modified to meet the tropical conditions of India. The breakdown of noticeable numbers of Scandinavians transplanted to our central Northwest is an historical fact. Is the cause environmental? Is the number of those who break simply the toll of adaptation to the new environment, or is it the first sign of a wholesale weakening?

Eventually the incessant and insinuating influence of environment conquers man. Every distinctive environmental area, in its own time, shapes and claims its own sons and daughters; others there, unfitted, perish; the environment disowns them and casts them out.

The biological problem of evolution is success in surviving. Because of the ever-advancing mastery of the materials, laws, and facts of the universe by increasing intelligence, is not the problem of human evolution, for the ethnic group as well as for the individual, success in surviving on an ever higher plane of culture? If so, nations ought to know the influence of environment on their children. Study should be made of radically different environmental groups of men.

First should be studied the purest and most stable groups which have lived long in areas where their hereditary characteristics were fixed.

Next should be studied peoples from these groups who have lived for some generations in radically different environments.

Last, since men have gone wherever gold has glittered, and nations have raised their flags wherever there were lands too weak to stay them, we should study the immediate influence of new environments on mankind. The environmental influence of the Americas upon the entire life and culture of transplanted Europeans, Africans, and Orientals should not be guessed at, but should be known. As Americans, we should be especially interested in the influence of Porto Rican, Hawaiian, and Philippine environments on Americans.

HUMAN AMALGAMATION.

For unknown hundreds of generations large and small groups of men were separated from one another by environmental differences of land, sea, altitude, temperature, humidity, and various conditions of culture. In this way, because the hereditary type of man was favored and the variations weeded out, the so-called great races and the smaller divisions of men resulted. Patent differences of pigmentation, stature, texture of hair, form of eye, nose, lips, chin, and head have thus been produced. Ethnic groups noticeably differ in temperament. All these characteristics, and many more, pass generation after generation, from parents to offspring.

For many generations groups of men were born with almost instinctive fear, loathing, and enmity toward persons in other groups; yet during all that time, here and there, the reproductive instinct has been stronger than all anti-group feeling, and amalgamation slowly developed until it became an increasingly strong influence.

As has been said, the biological problem of evolution is success in surviving; always the physically, mentally, and morally weak must perish before the stronger. Here is the great amalgamation problem. What effect has amalgamation on the survival-fitness and possibilities for development of ethnic groups? The entire Western Hemisphere and America's islands in the Pacific are filled with amalgamating peoples. In the United States alone, thousands of Orientals, hundreds of thousands of American Indians, millions of Negroes, and ten times as many white men from a score of ethnic groups are amalgamating.

What will be the result? As an illustration of the facts of amalgamation that may be obtained, I cite a recent investigation of about 40,000 families in Minneapolis, conducted primarily to ascertain local ethnic conditions. Among the interesting facts revealed were the strength of the natural prejudices to intermarriage between the thirty-seven ethnic groups studied, the relative rapidity with which the different groups amalgamate, and the influence of amalgamation on fecundity. For instance, it was found that the so-called pure-blood families (those in which husband and wife are both Irish or both Scandinavian, etc.) were more fecund than families of mixed ethnic parentage. In Minneapolis to-day fecundity decreases with increasing amalgamation, even when social, economic, and geographic conditions are taken into consideration. Here man and woman of the same ethnic group appear to have become mutually fitter for parenthood than man and woman of different groups.

Though there are so few available facts on amalgamation among considerable numbers of individuals, those cited emphasize the value of a thorough study of the subject in the light of the rapidly accumulating knowledge of human heredity. Only when the facts of amalgamation are known can modern nations wisely encourage, prohibit, or regulate this factor which so powerfully operates before our open eyes which see not.

There have been many theories about the "half breed"; the time has come to know the facts about him. Great opportunities for the scientific study of amalgamation are open in the Hawaiian Islands, the Philippines, Brazil, Argentine, and the United States. Brazil, perhaps, offers the best opportunity for the study of unhindered amalgamating tendencies, because of the minimum of race prejudice between the three races amalgamating there.

AN ANTHROPOLOGICAL LABORATORY.

A permanent laboratory should eventually be established in connection with these studies in ethnic heredity, environment, and amalgamation where records of research would continually accumulate and where they would be kept indefinitely. From this laboratory new data should be published frequently, not alone for conclusions which might have been arrived at, but that such data might assist investigators in various parts of the world. Such a laboratory should be so equipped and manned that it would become the world clearing-house for anthropology for all time.

It may be argued that, even were the facts of heredity, environment, and amalgamation obtained and available, they would be of little use to-day, since influences are already at work which would be impossible to control. To a certain extent this is true, but one of the essentials of human progress is that man works not for his own generation alone, but for future generations. One can not measure the beneficial results to future generations of a body of accurate and scientific facts available on these subjects. Moreover, facts of this kind to-day in America become a part of educated public opinion surprisingly soon, and have their inevitable and far-reaching influence.

CONCLUSION.

The large anthropological problems of the Western Hemisphere and the Pacific islands have been presented and visualized in a broad way, largely with absence of detail. Each of these problems is available for research now, in some one of its integral parts.

For instance, in the Pacific islands work could be begun among any of the five ethnic groups or on the problem of the prehistoric stone remains. In the Western Hemisphere research could be prosecuted among the Maya culture ruins, as suggested by Mr. Morley's report. Shell-heap explorations could be started which might be expected to contribute toward the solution of the two problems of the origin of the American aborigines, and of their antiquity; or various culture or ethnic studies could be carried on; or, again, important research work could be undertaken on any aspect of the modern problems in anthropology. Individual and ethnic studies relating to the immigrant peoples in the Americas might be a good starting-point.

No matter in how small a way any of the researches suggested in this report might be begun, the cultivation of the entire domain of the larger problem could constantly be held in mind and could be forwarded in proper time, so far as practicable and necessary.

Students are fortunate that many restricted smaller problems are comprised in the larger ones, so that valuable results may be obtained and published, marking mile-stones on the longer road of research.

Institutions now engaged in the field of anthropology can not undertake any of these large problems as a whole, for they are all limited by such practical conditions as money, or by historical relations, such as lease of life, patronage of a particular government, or limiting conditions of organization. They have done and are still doing the highest grade work on many aspects of some of these problems, but because of their natural limitations a great part of the research necessary on the larger problems can not be undertaken by them. Such large, prolonged, and geographically extensive researches must be undertaken by an institution bent primarily on the solution of large problems.

From the work of these other institutions vast accumulations of museum specimens and of printed, illustrative, and manuscript data are available. The time to undertake the larger work seems ripe.

It is believed that the entrance of a properly equipped new institution into the field of anthropological research would hearten the anthropologists already at work, would attract capable young men to the science, and would enable the subject to receive greater consideration in the curricula of American colleges and universities. Moreover, it seems reasonable to expect that the extensive field of anthropological data might, by corporate research in all four divisions of the field presented, be more quickly united into a strong, unified science whose findings would be valued by scholars everywhere, and whose practical results would hasten the development of mankind.

ARCHAEOLOGICAL RESEARCH AT THE RUINS OF
CHICHEN ITZA, YUCATAN

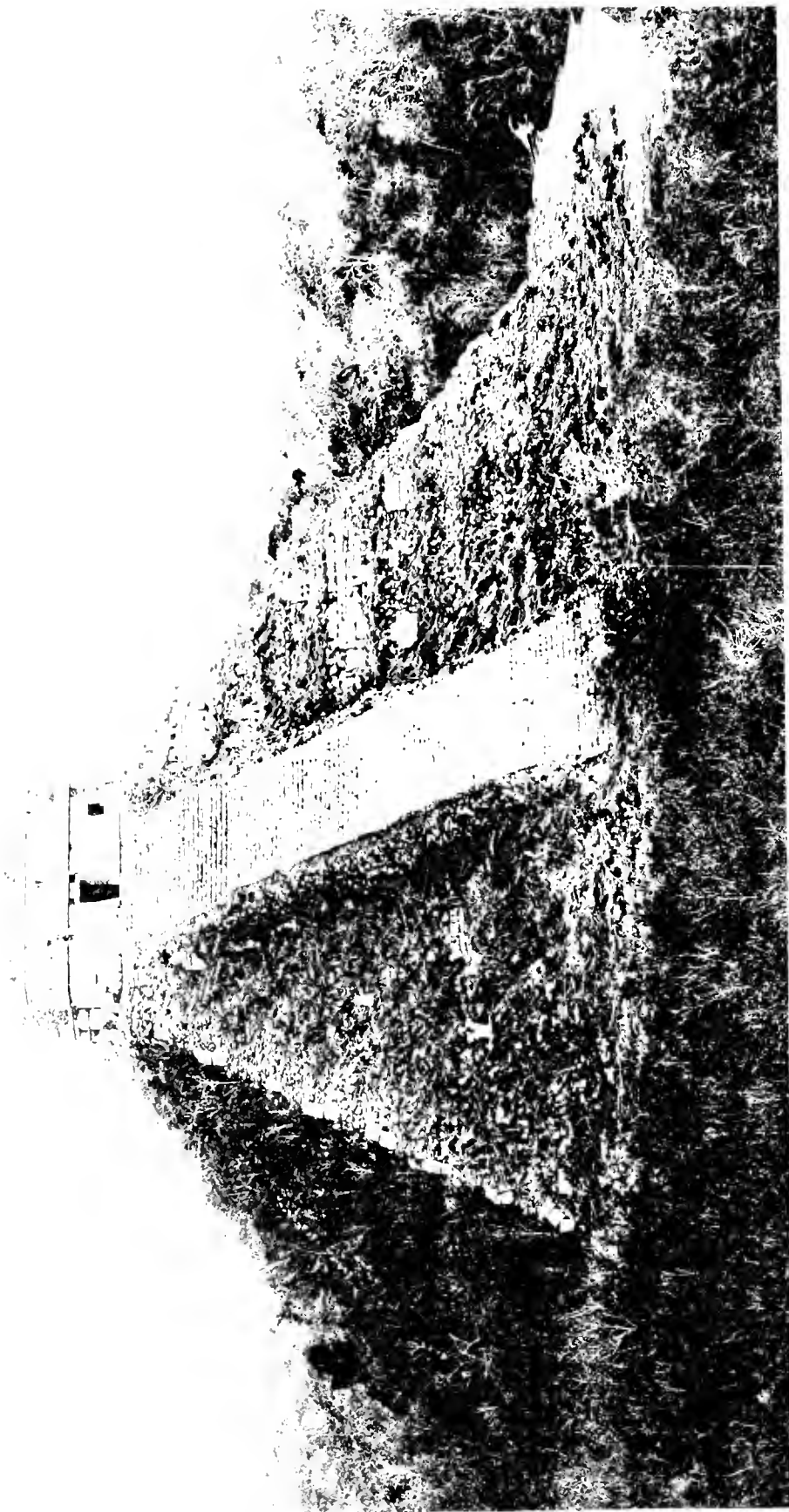
BY SYLVANUS G. MORLEY

CONTENTS.

	PAGE.
Introduction.....	63
"The Greeks of the New World".....	63
The Area covered by the Maya Civilization.....	61
The Ancient Maya.....	61
Previous Work in the Maya Field.....	68
Present Needs of the Maya Field.....	71
Advantages of Chichen Itza as a Base of Operations.....	72
Scientific Reasons:	
1. Chichen Itza—The Political Center of Yucatan.....	72
2. Chichen Itza—The Religious Center of Yucatan.....	73
3. Chichen Itza—The Foremost City of the Maya Renaissance.....	73
4. Chichen Itza—The Key to the Correlation of Maya and Christian Chronology.....	74
5. Chichen Itza—The Connecting Link between the Maya and Nahua Civilizations.....	74
6. Chichen Itza—The most likely spot at which to find a Maya "Rosetta Stone".....	75
7. Chichen Itza—The most notable Historic Site in the Maya Culture Area.....	75
Practical Reasons:	
1. Accessibility.....	76
2. Length of the Field Season.....	76
3. Healthfulness.....	77
4. Labor Conditions.....	77
5. Field Quarters.....	78
Nature of the Project herein presented.....	79
Conclusion.....	82
Appendix	
I. List of Books on the Maya Civilization.....	83
II. List of Writings relating to the Archaeological Sites mentioned in this Report.....	86
III. Incomplete List of Groups of Related Structures at Chichen Itza.....	89
IV. Description of Human Sacrifices at the "Cenote of Sacrifice".....	90
V. Description of the Aztec Ball Game "Tlachtli".....	91

LIST OF PLATES.

- Plate
1. General View of the Castillo or Principal Temple.
 2. The Cenote of Sacrifice.
 - 3A. The Front or North Façade of the Castillo.
 - 3B. The Ball Court.
 - 4A. Detail of a Frieze, from the Temple of the Jaguars.
 - 4B. Temple of the Initial Series, from the front.
 5. The Temple of the Jaguars.
 6. The Temple of the Jaguars, restored after Maudslayi.
 7. The Monjas Group.
 8. The East Wing of the Monjas.
 9. The Main Range of the Monjas, from the South.
 10. The Casa Colorado.
 - 11A. Spruce Tree House, Mesa Verde National Park, before Excavation and Repair.
 - 11B. Spruce Tree House, Mesa Verde National Park, after Excavation and Repair.
 12. Map of Southern Mexico and Central America, showing Region covered by Maya Civilization.
 13. Map of the Ruins of Chichen Itza, Northern Yucatan.
 14. Panorama of the Ruins of Chichen Itza.



The Castillo or Principal Temple, from the West.

ARCHAEOLOGICAL RESEARCH AT THE RUINS OF CHICHEN ITZA.

INTRODUCTION.

"THE GREEKS OF THE NEW WORLD."

This question is often asked: What aboriginal people of the New World had achieved the highest culture before the coming of Europeans? And indeed it is a matter of recognized importance to determine which native American race had traveled farthest on the road from savagery to civilization.

A comprehensive review of man and his achievements in the Western Hemisphere discloses but two peoples whose claims need be considered for this distinction, namely, the Inca¹ of Peru and the Maya of southern Mexico and Central America. These two nations were the leaders of civilization in their respective continents, and in each case their nearest competitors were far behind. But when it comes to a choice between the two, to awarding preeminence to one over the other, justifiable differences of opinion exist. In the first place, neither race surpassed the other in every branch of human activity. In some fields the Inca excelled, and in others the Maya. The Inca were preceded by several earlier civilizations, to which they were largely indebted for essential features of their culture, whilst the Maya had no such inheritance. They were originators and not adapters of art and architecture. Maya remains present an unbroken cultural development extending over 1,500 years. It is admitted that the Inca surpassed the Maya in the textile arts and possibly also in governmental and social organization. But even granting this partial superiority, the writer believes that a broader comparison of the two cultures will award first place to the Maya. It is certain that the latter far excelled the Inca in the arts of sculpture, painting, and architecture, and in the sciences of writing, arithmetic, astronomy, and chronology. Their history recorded in their hieroglyphic inscriptions covers a range of more than a thousand years; their observations in astronomy reveal a knowledge of the movements of heavenly bodies equalled by that of few peoples of antiquity; their system of chronology kept an account of elapsed time which in accuracy rivals our own; while in sculpture, painting, and architecture the Maya have been most aptly termed "The Greeks of the New World."²

¹By Inca is here meant the people who dominated Peru at the time of the Spanish Conquest. The Inca civilization, like the Aztec, was of comparatively recent origin, not extending back more than three or four centuries before the first coming of Europeans in 1525.

²For a brief bibliography of the Maya civilization and culture area see Appendix I, page 83.

THE AREA COVERED BY THE MAYA CIVILIZATION.

The region occupied by the Maya was the low Atlantic coastal plain in what are now the northern parts of Honduras and Guatemala, all of British Honduras, and the Gulf States of southern Mexico, an area approximately 500 miles north and south by 300 miles east and west. (See Plate 12.)

The southern part of this region is abundantly watered by a network of streams, which have their rise in the Cordillera, while the northern part, comprising the peninsula of Yucatan, is entirely lacking in such water-courses and were it not for large natural wells found here and there it would be uninhabitable.¹ In the south the country is densely forested, though occasional savannas break the monotony of the tropical jungles. The surface is rolling and is traversed in places by ranges of hills, which in British Honduras rise to a maximum elevation of 3,700 feet above the sea-level.² In the north the nature of the soil and the scarcity of water are not favorable to the growth of a luxuriant vegetation, and this region is therefore covered with a smaller forest growth and a sparser bush than the area to the south. The deer, monkey, tapir, peccary, jaguar, and numerous other mammals are abundant throughout the entire region and doubtless formed a large part of the food supply in ancient times. The climate is tropical. There are two seasons, the rainy and the dry, the former corresponding roughly to our summer and autumn, and the latter to our winter and spring. At present there are over twenty different tribes, representing more than a million people, who speak dialects of the Maya language. It might be added in this connection that in spite of the loss of their former glory the Maya still remain the finest aboriginal people of North America.

THE ANCIENT MAYA.

The ancient Maya probably emerged from savagery about 2,000 years ago, at least their earliest-dated monuments can not assuredly be referred to a more remote period, and any estimate as to how much time before that had been required to develop their complex calendar and hieroglyphic system to the point of graphic record is only conjectural. One thing alone is certain: a long interval must have elapsed from the first crude and unrelated scratches of savagery to the elaborate and highly involved hieroglyphics found on the earliest monuments.

By the end of the second century A. D., the Maya had emerged from savagery and were at the threshold of civilization. There then began an extraordinary development throughout the southern part of the area. City after city sprang into prominence, each contributing by its growth to the general uplift. During this period all of the great southern cities flourished: Tikal, Copan, Palenque, Naranjo, Piedras Negras, Yaxchilan, Quirigua, and

¹These large natural wells, often 200 feet in diameter, are called by the Maya *cenotes*.

²Victoria Peak, in the Cockscorn Mountains of British Honduras, is said to reach this elevation.

Seibal.¹ Besides being the largest, the first three mentioned were also the leaders in cultural progress. The period during which these cities flourished lasted for upwards of 400 years, or until the close of the sixth century A. D. It has been called "The Golden Age of the Maya," since, in so far as sculpture is concerned, it is best comparable with the classic period of Greek art.

The causes which led to the decline of civilization in the south are unknown. It has been suggested that the Maya were driven from the various cities above mentioned by barbarian pressure from the south, east, and west; or again, that the Maya civilization, having run its natural course, collapsed through sheer lack of physical ability to go forward—or, in other words, through racial decay and deterioration. It matters little what explanation is advanced to account for the general decline, this one all-important fact remains: Just after the close of Cycle 9 of Maya Chronology, or about 600 A. D., there is a sudden and final cessation of dates in all the southern cities. Some universal calamity apparently overtook the Maya people at the opening of their Tenth Cycle, as a result of which their homes were abandoned and their country left desolate.

About a century before the end of Cycle 9, however, the country lying to the north, *i. e.*, the peninsula of Yucatan, seems to have been discovered and colonized for the first time. Some have even gone so far as to ascribe the downfall of the southern cities to this very event; and it does not seem improbable that, after the discovery of Yucatan by the Maya and the subsequent opening of that vast region to colonization, the southern cities commenced to decline. As the new country waxed in strength and power the old waned, so that by the end of the sixth century A. D. the rise of the one and the fall of the other had been accomplished.

The occupancy of Yucatan marked the dawn of a new era for the Maya, although their Renaissance did not begin at once. At first the struggle for bare existence must have largely absorbed the energies of all, and not until their foothold was secure could there have been much time or wealth available for the cultivation of the æsthetic arts. Then, too, at first there seems to have been a feeling of unrest in the new land, a shifting of houses and testing of new localities, all of which retarded the development of sculpture, architecture, and other arts. Bakhalal (see Plate 12), the first settlement in the north, was abandoned after an occupancy of only 60 years. Chichen Itza (Plate 12), destined to become the greatest of all Maya cities, was the next settlement, and although occupied for more than a century, it also was abandoned and the search for a new home resumed. One group of Maya, moving westward from Chichen Itza across Yucatan, occupied the city of Chakanputun, in the western part of the peninsula (Plate 12), about the beginning of the eighth century. Here they are said to have lived for about 200 years or until 960 A. D., when this city was destroyed by fire. By this time, however, the

¹For the location of these sites, see plate 12, and for a description of them, as well as the others mentioned in this report, consult the references given in Appendix II, page 86.

Maya had become familiar with their new environment and their energies once more had begun to find outlet in artistic expression. The Transitional Period was at an end, and the Maya Renaissance was under way.

The opening of the eleventh century witnessed important and far-reaching political changes in Yucatan. After the destruction of Chakanputun, the horizon of Maya activity expanded. Some of the Maya returned to their former homes at Chichen Itza and reoccupied that city, while others established themselves at a new site called Mayapan (Plate 12). At this time also the city of Uxmal was founded. In 1000 A. D. these three cities formed a confederacy, under the terms of which each shared equally in the government of the country. Under the peaceful conditions which followed this coalition, the arts blossomed anew. This was the second and last great Maya epoch. During its course there doubtless arose the many cities whose crumbling ruins are to be found to-day throughout the length and breadth of Yucatan. When these were occupied, the country must have been one vast hive of activity, for only large numbers of people, actuated by a great religious and æsthetic awakening, could have left remains so extensive.

This era of universal peace was abruptly terminated about 1200 A. D. by an event which shook the political structure to its foundations and disrupted the "Triple Alliance," under whose beneficent rule the land had grown so prosperous. The ruler of Chichen Itza seems to have plotted against his colleague of Mayapan, and in the disastrous war which followed, the latter (by the aid of Nahua allies brought from Mexico) utterly routed his opponent and drove him from his capital.

The conquest of Chichen Itza seems to have been followed during the thirteenth century by attempted reprisals on the part of the Itza, which plunged the country into civil war. After the dissolution of the "Triple Alliance" it seems probable that Chichen Itza was given by the ruler of Mayapan to his Nahua allies in recognition of their assistance. At least many of the buildings at Chichen Itza are strongly Nahua in character, a condition which prevails at no other large city in the Maya area.¹

According to the early Spanish chroniclers, the fourteenth century was characterized by increasing arrogance and oppression on the part of the rulers of Mayapan, who found it necessary to surround themselves with Nahua fighting men to keep in check the rising discontent of their subjects. This unrest culminated about the middle of the fifteenth century, when the Maya nobility, goaded to desperation by this oppression, banded themselves together under the Lord of Uxmal, sacked Mayapan, and slew its ruler.

The destruction of Mayapan sounded the death-knell of the Maya civilization. As the native chroniclers tersely put it, "(After this) The chiefs of the country lost their power," and again, "They were destroyed and it was ended with those called Mayas." The population was split into a number of

¹This is particularly true of the Ball Court, which is a purely Nahua type of building. See page 75 and plate 3 B.

warring factions. Ancient feuds and jealousies, no longer held in leash by a strongly centralized government, were doubtless revived, and again the land was rent with strife. Presently, to the horrors of civil war were added those of famine and pestilence, each of which visited the peninsula in turn, carrying off great numbers of people.

These several calamities, however, were but forerunners of worse soon to come. In 1517 Francisco de Cordova landed the first Spanish expedition on the coast of Yucatan,¹ and, although he was repulsed after having accomplished little more than the discovery of the country, this was the beginning of the end. The following year Juan de Grijalva descended on the peninsula, but meeting with such determined resistance, he also sailed away, having gained nothing. The next year (1519) Hernan Cortes landed on the northeastern coast, but reembarked for Mexico after a few days' stay. Seven years later, in 1526, Francisco Montejo obtained the title of "Adelantado of Yucatan" from the King of Spain and set about the conquest of the country in earnest. He landed an expedition of 500 men on the northeastern coast and, with the elaborate formalities customary to such occasions, took possession of the country in the name of Charles V. This empty ceremony proved to be only the prelude to a sanguinary struggle which broke out almost immediately thereafter and continued with extraordinary ferocity, the Maya fighting desperately in defense of their homes. Indeed it was not until fourteen years later, or on June 11, 1541 (old style), that the Spaniards, having defeated a coalition of Maya chieftains near the city of Ichcansihoo (Merida), effected the permanent occupancy of the country.

Here ends the independent history of the Maya. For fifteen centuries this remarkable people had preserved their cultural life singularly intact and free from alien influences, only to succumb in the end to causes working from within. Through racial decay and internecine strife, the product or perhaps the price of its development, the Maya civilization came at length to naught, and while the Spanish conquest was the immediate cause which shattered this once great culture, the seeds of its decay and downfall had been sown long before the discovery of America.

¹This expedition, however, was not the first appearance of white men on the shores of Yucatan. In 1511 a caravel, bearing the Regidor Valdivia from Darien to Española (Cuba), was wrecked near Jamaica, and all aboard were lost except Valdivia and about 20 companions, who took to a small open boat. After untold suffering, during which half of them died, the miserable survivors were cast upon the eastern coast of Yucatan, where they were seized by the Maya, thrust into prison, and held for sacrifice. One by one they were killed until only a half dozen were left. These, rendered desperate by the cruel fate of their comrades, broke out of their prison one dark night and fled to a neighboring village whose lord was not so bloodthirsty. Here they were enslaved. In the course of time all but two died, Geronimo de Aguilar and Gonzalo Guerrero. The former, after eking out a miserable existence for eight years, was rescued by Hernan Cortes in 1519, and lived to play an important rôle in the conquest of Mexico as one of Cortes' two interpreters. Gonzalo Guerrero had even a more picturesque career. He exhibited such proficiency in military affairs that his master, a Maya lord, put him in charge of his army. His successes here won him an Indian wife of noble blood, by whom he had several children. He became a Maya in every respect, covered his body with tattooing, allowed his hair to grow, pierced his ears for earrings, and as the pious chronicler concludes: "It is even believed he was an idolater like them."—*Relation des Choses de Yucatan*, p. 16. Diego de Landa, Paris, 1864.

PREVIOUS WORK IN THE MAYA FIELD.

The archæological importance of the Maya field was first made known by John L. Stephens, who visited the Central American republics in 1839 and 1840, on a special mission from the United States Government. His charming book entitled "Incidents of Travel in Central America, Chiapas and Yucatan" still remains, after the lapse of 75 years, a standard authority on the subject; and, indeed, so far as the purposes of general description are concerned, this book and its sequel, "Incidents of Travel in Yucatan," have never been superseded.

Following the preliminary work of Stephens, there was a hiatus of nearly fifty years before a real scientific study of this region was undertaken. In the decade 1881-1891, Mr. A. P. Maudslay visited the principal ruin groups previously mentioned, and, through an arrangement with the editors of "The *Biologia Centrali Americana*," published a superb set of photographs, maps, plans, and drawings of monuments and buildings at these sites. This work is of such a high character that it easily ranks as the greatest single contribution to the study of Maya archæology. It consists of four volumes of text and some 400 plates. Mr. Maudslay's work, however, was largely of a preliminary character. He did little excavating, but devoted the greater part of his time to surveying and mapping the sites visited, and photographing and making molds of various sculptures. The wealth of material for the study of Maya sculpture, architecture, and hieroglyphic writing, which his work made accessible, gave a tremendous stimulus to Maya archæology and awakened an interest which is still maintained.

In 1888 the Peabody Museum of Harvard University entered the Maya field. The first work undertaken by this institution was the exploration of the ruins of Labna in northern Yucatan (Plate 12); this was continued in the two years following and several other sites in the vicinity were explored.

In 1891 a more ambitious project was inaugurated, namely, the excavation of the large ruined city of Copan, in the western part of Honduras. This work was carried on for four years, and during its course much valuable material was obtained. Unfortunately, its discontinuation became necessary in 1895, bringing to a close the most important research ever made in the Maya area and, with one exception, the only intensive study of a large representative site¹ that has yet been undertaken.

After the discontinuance of the Copan project, the Peabody Museum returned to exploratory work. In 1896 and 1897 the valley of the Uloa River was visited and important collections of pottery were made.² In 1899 Mr. Teobert Maler, of Merida, Yucatan, was sent to the Department of Peten, northern Guatemala, where for the next five years he made extensive explorations, which, however, were largely preliminary in character. Mr. Maler made

¹The results of the various expeditions to Copan were published in "Memoirs of Peabody Museum of American Archæology and Ethnology," Harvard University, vol. 1 (Nos. 1, 5, and 6), Cambridge, 1896-1902.

²Memoirs of Peabody Museum of American Archæology and Ethnology, Harvard University, vol. 1, No. 4.



The Cenote of Sacrifice. The small Temple, from which human victims were hurled to the waters below, is shown at extreme left.



A The Front or North Facade of the Castillo.



B. The Ball Court. The object of the game was to drive a ball through the stone ring shown here.

A

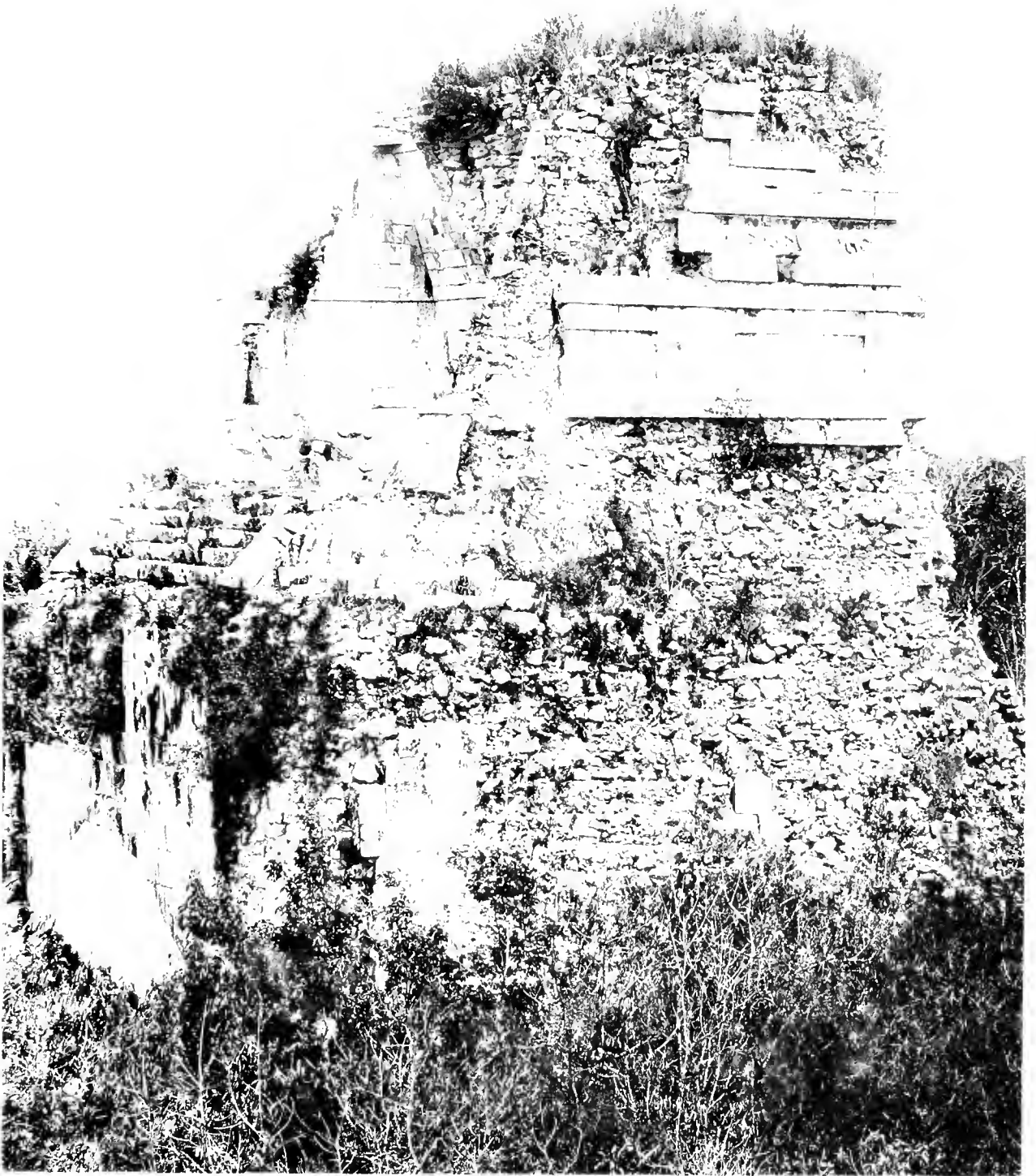


B

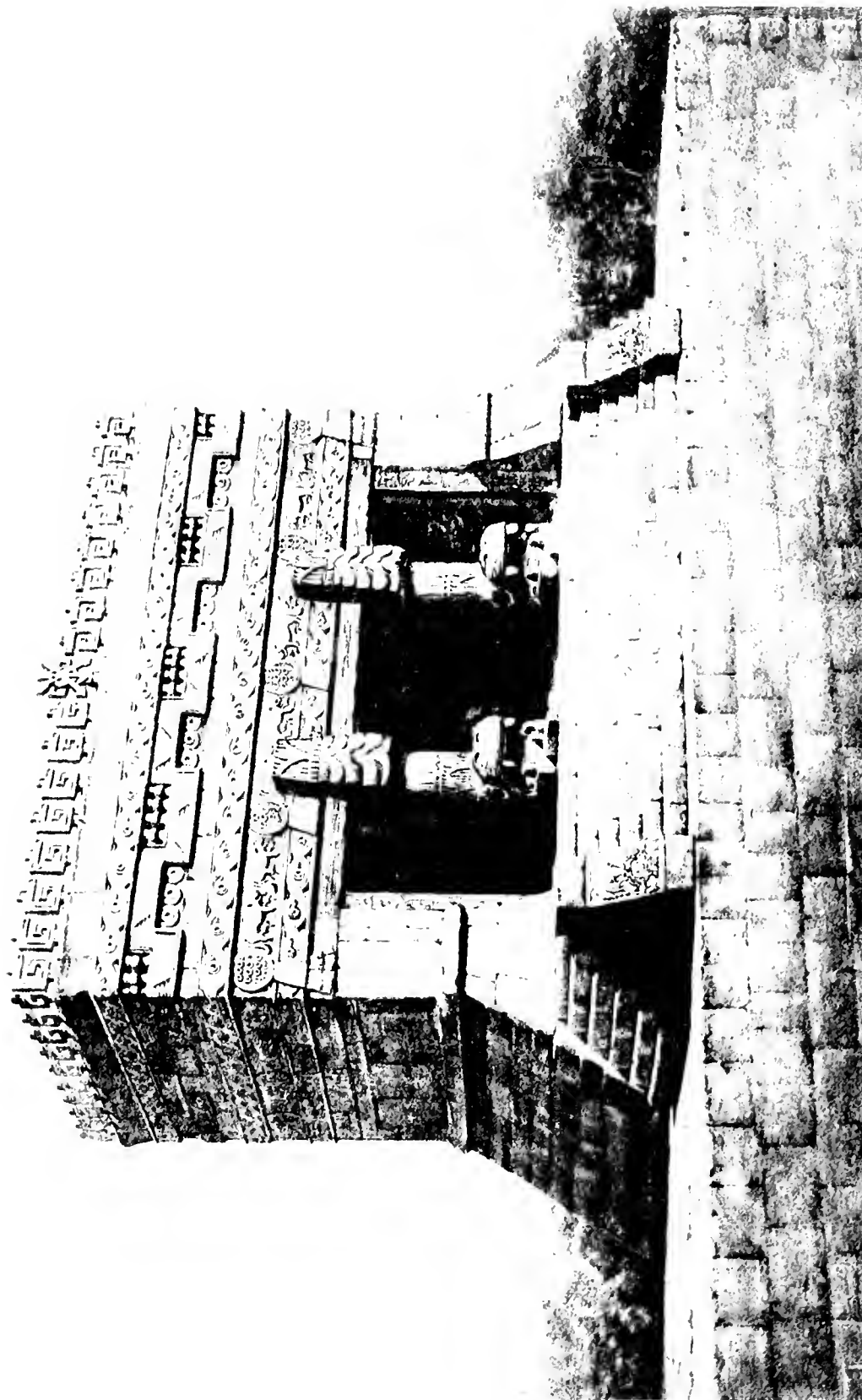


A. Detail of a Frieze from the Temple of the Jaguars, showing the Motive from which this structure takes its name.

B. Temple of The Initial Series, from the Front. The inscription shown in text figure is engraved on the under side of the Lintel supported by these Atlantean Columns.



The Temple of the Jaguars.



The Temple of the Jaguars, restored after Maudslay.

The Frieze of stalking Jaguars alternating with Shields appears above the Doorway.

sketch-maps of the different sites visited, prepared plans and cross-sections of the principal buildings, and photographed all the sculptured remains he could locate. The results of his studies have been published by the Peabody Museum.¹ His chief contribution to the science has been his admirable photographs, which constitute a treasury of hitherto unknown material for the study of Maya art and hieroglyphic writing. In 1910 the Peabody Museum resumed its operations in northern Guatemala² by sending an expedition to this region. A survey and a map of the large ruined city of Tikal were made, and several other sites in the vicinity were explored. This reconnaissance was continued in 1911 and 1912, and resulted in the discovery of several ruin groups of secondary importance.

To the Field Museum of Natural History in Chicago is due credit for the standard handbook on Maya architecture. Under the auspices of this institution, Mr. W. H. Holmes visited the principal northern ruin groups in 1894 and published the results of his observations in "Archæological Studies among the Ancient Cities of Mexico." The clear architectural sketches and restorations, and the panoramic views of the different sites described, make this publication the best scientific handbook on Maya architecture that has yet appeared.

Since 1904 the Archæological Institute of America has maintained a Fellow in this field, and considerable data on archæology, ethnology, and linguistics have resulted from this activity.³ In 1909 the School of American Archæology, a branch of the same institution, began the investigation of the ruins of Quirigua, Guatemala, with the cooperation of the St. Louis Society of the Institute and the United Fruit Company. Work has been conducted for three years and will be continued until an exhaustive study of this site has been made.⁴

The University of Berlin has sent out exploring and collecting expeditions from time to time, which have resulted in the acquisition of much new archæological and ethnological material. These expeditions have devoted themselves chiefly to reconnaissance work, little or nothing in the way of close study at particular sites having been attempted.

In addition to the field work above described, considerable research has been carried on at some of the larger universities and scientific institutions. Here should be included the pioneer work of Dr. D. G. Brinton, of the University of Pennsylvania, in the field of Maya history and mythology;⁵ the masterly studies of the illuminated manuscripts by Prof. Ernst Förstmann, of

¹See *Memoirs of the Peabody Museum of American Archæology and Ethnology*, Harvard University, vol. II, vol. IV, and vol. V (No. 1), Cambridge, 1901-1911.

²*Ibid.*, vol. V (No. 2), Cambridge, 1911.

³See "A Comparative Study of the Mayas and the Lacandonos," by Alfred M. Tozzer, New York, 1907.

⁴See *Bulletin of the Archæological Institute of America*, vol. II, pp. 117-134; and vol. III, pp. 163-171.

⁵"The Maya Chronicles," Dr. D. G. Brinton, Philadelphia, 1882. "The Annals of the Cakchiquels," Dr. D. G. Brinton, Philadelphia, 1885. "American Hero Myths," Dr. D. G. Brinton, Philadelphia, 1882. "Essays of an Americanist," Dr. D. G. Brinton, Philadelphia, 1890, and other writings.

the Royal Library at Dresden,¹ and Dr. Cyrus Thomas, of the Bureau of American Ethnology;² and the definitive researches in the hieroglyphic writing and Maya chronology by Mr. J. T. Goodman, of Alameda, California,³ and Mr. C. P. Bowditch, of Boston.⁴ These scholars have laid the broad foundations of archæological research in Central America, and it is on their work that succeeding generations of students must build.

Maya Art has been studied by Dr. H. J. Spinden, of the American Museum of Natural History, whose researches have established the chronological sequence of Maya sculpture beyond all doubt.⁵ The work of Mr. Juan Martinez, of Merida, Yucatan, on post-Conquest Maya documents,⁶ also is entitled to special mention. Mr. Martinez is easily the foremost authority on the Maya language and his studies have shed much light on the subject of Maya mythology. The contributions of Mr. Thomas E. Gates, of Point Loma, California, on Maya manuscripts, are also worthy of notice.⁷ The writer's own researches have been concerned chiefly with Maya history, chronology, and hieroglyphic writing.⁸

¹"Commentary on the Maya Manuscript in the Royal Public Library of Dresden," Dr. Ernst Förstmann, in *Papers of the Peabody Museum of American Archaeology and Ethnology*, Harvard University, vol. iv, No. 2, Cambridge, 1906, and other writings.

²"A Study of the Manuscript Troano," Dr. Cyrus Thomas, Washington, 1882, and other writings.

³"The Archaic Maya Inscriptions," J. T. Goodman, London, 1897, in *Biologia Centrali Americana*, Appendix to section on Archaeology, and other writings.

⁴"Maya Numeration, Calendar, and Astronomy," C. P. Bowditch, Cambridge, 1910, and other writings.

⁵"A Study of Maya Art: Its Subject-matter and Historical Development," Dr. H. J. Spinden, in *Memoirs of the Peabody Museum of American Archaeology and Ethnology*, Harvard University, vol. vi, Cambridge, 1913.

⁶"Los grandes ciclos de la historia maya segun el Manuscrito de Chumayel," Juan Martinez Hernandez, Merida, 1910. "La Creacion del Mundo segun los mayas. Paginas ineditas del M. S. de Chumayel." Juan Martinez Hernandez, Merida, 1912.

⁷"Commentary upon the Maya-Tzental Perez Codex," William E. Gates, Cambridge, 1910. *Papers of the Peabody Museum of American Archaeology and Ethnology*, Harvard University, vol. vi, No. 1.

⁸"A Group of Related Structures at Uxmal, Mexico," Sylvanus G. Morley, *Papers of the School of American Archaeology*, No. 6. "The Inscriptions of Naranja, Northern Guatemala," Sylvanus G. Morley, *Ibid.*, No. 9. "The Correlation of Maya and Christian Chronology," Sylvanus G. Morley, *Ibid.*, No. 11. "The Historical Value of the Books of Chilán Balam," Sylvanus G. Morley, *Ibid.*, No. 18. "An Introduction to the Study of the Maya Hieroglyphics," Sylvanus G. Morley, to be published as a Bulletin of the Bureau of American Ethnology, Smithsonian Institution.

PRESENT NEEDS OF THE MAYA FIELD.

From the preceding section it is clear that by far the greater part of the archæological work hitherto conducted in the Maya field has been of a preliminary nature. The work of most of the expeditions mentioned has been exploratory in character, and few of them have undertaken an intensive study of particular problems. Useful as this exploratory work has been in establishing the boundaries of the Maya civilization and in ascertaining its more obvious features, such as the number, size, and distribution of its different centers, the character of its art and architecture, the nature of its hieroglyphic writing, etc., the time has now come for a more detailed study of these problems—for research rather than reconnaissance.

Maya archæology has passed through its preliminary stages. It is now generally conceded, by those most competent to judge, that in the future the greatest contributions to the science will come from the intensive study of representative sites. Such study necessarily involves the vigorous and continued prosecution of archæological work at some important site for a number of years. So large and complex are these ancient Maya cities that the problems they present can be solved only by an expedition operating over a considerable period.

The project contemplates the conduct of archæological research at one of the largest centers of the Maya civilization, and the intensive study for a number of years of the site chosen. After the work has been thoroughly organized and has proceeded to the point of producing noteworthy results (perhaps a matter of several years), its scope should be gradually extended to cover the surrounding region through subordinate expeditions emanating from the original base of operation. This extension of the research is suggested simply to indicate the magnitude of the problem awaiting investigation in any special archæological province of the Maya culture area. These problems are not so large as to be incapable of definite solution within a reasonable period of time, but yet extensive enough to engage the energies of a fairly large expedition for at least a score of years.

In selecting a site for the concentration of such research, there are several general qualifications which the place chosen should possess, namely:

1. It should be large enough and of sufficient importance to offer material for study for at least twenty years.
2. It should be the center or metropolis of the surrounding region.
3. Its archæological significance should be such as to justify intensive investigation.
4. It should be as healthful and at the same time as accessible as possible.

On these last two factors very largely depends the efficiency of any scientific expedition operating in the tropics. The site which combines the greatest number of these factors is therefore the one at which extended research can be carried on most advantageously.

ADVANTAGES OF CHICHEN ITZA AS A BASE OF OPERATIONS.

After a careful comparison of the largest Maya cities, the writer has concluded that there are many important reasons, practical as well as scientific, why Chichen Itza, in northern Yucatan, is better fitted for immediate intensive investigation than any other Maya center. Before giving these reasons in detail, a word as to the situation of the site may not be out of place.

The ruins of Chichen Itza are in the northeastern part of the peninsula of Yucatan (Plate 12), 15 miles from the nearest railroad and 100 miles from Merida, the capital of the state. The surrounding country is a vast limestone plain, level as a table-top and destitute of water-courses.

This ancient city was named after the tribe which founded it, and from the two great natural wells (or cenotes) found there: *Chi*, mouths; *chen*, wells; and *Itza*, the name of the people which settled there, hence *Chichen Itza*: "The mouths of the wells of the Itza." To these two large natural reservoirs (see map of the city in Plate 13, and K and L in the panoramic view in Plate 14), the city may be said to owe the fact of its existence. As the Maya moved northward into Yucatan from their former haunts, the more arid character of the new land must have troubled them greatly, hence where water was found in abundance, as at Chichen Itza, inevitably a large city would rise. However, only one of these wells (K, Plate 14) seems to have been used as a source of water supply in ancient times. This cenote is 100 feet in diameter and about 70 feet in depth to the surface of the water. Down one of its vertical sides there winds a steep stairway which terminates in a platform, where formerly the water-carriers were wont to fill their jars. The remaining well, "The Cenote of Sacrifice (L, Plate 14), had a more exalted use, which will be explained in another place.

We will now present in more detail the reasons why Chichen Itza is the most promising and, at the same time, the best adapted site in the Maya field for intensive study.

SCIENTIFIC REASONS.

1. *Chichen Itza, the Political Center of Yucatan.*

Chichen Itza was the largest city of the Maya civilization and, as such, offers a practically inexhaustible field for research. Its temples and palaces cover an area a mile square, and surrounding this on every side, for a distance of 5 miles, the bush is filled with groups of outlying buildings. (The map and panoramic view given in Plates 13 and 14 show only the religious and civic center of the city.) In addition to being the largest city, Chichen Itza for many centuries was the political and governmental center of Yucatan, and consequently every activity, such as sculpture, mural painting, and architecture, experienced a correspondingly high development there.

2. *Chichen Itza, the Religious Center of Yucatan.*

As a holy or sacred city, Chichen Itza was preeminent. In the native manuscripts of the sixteenth and seventeenth centuries its inhabitants are referred to as "The Itza, holy men,"¹ apparently indicating a widespread belief in the sacred character of the city and its people. This holiness was considerably enhanced by "The Cenote of Sacrifice," to which pilgrimages were made from distant points, even outside the Maya area, until the Spanish conquest in the sixteenth century. Offerings of all kinds were cast into this cenote, even including human sacrifices in times of drought, to appease the anger of the offended rain deities.² Says an early chronicler, in speaking of "The Cenote of Sacrifice":

"From the court in front of these theatres³ there goes a beautiful and broad causeway to a well about two stone-throws distant. In this well they used to have, and still have, the custom of casting living men in sacrifice to the gods in times of drought, and they hold that these do not die, even though they are seen no more. They also cast into this well many other things, stones of value and whatever else they regard as precious. And so if this country had had gold in it, it would be found in this well, so great is the devotion of the Indians to it."⁴

Recent archæological investigations substantiate the sacred character of this cenote and the fact that human victims were thrown into it.

The causeway above mentioned (Plate 13) commences at the edge of the broad terrace in front of the Castillo (Plate 1 and 3A, also 1, Plate 14), the principal temple at Chichen Itza, and leads to a small shrine at the brink of "The Cenote of Sacrifice" (Plate 2). From this latter point the victims were hurled into the water below. The fact that Chichen Itza was the holiest city of the Maya, in short, "The Mecca of the Maya World," considerably increases its archæological importance.

3. *Chichen Itza, the Foremost City of the Maya Renaissance.*⁵

When the Maya moved northward into Yucatan from the older centers of their civilization, Chichen Itza was the first large city founded in the new land. For this reason it is the best place at which to study the changes effected in the old civilization by the new environment. Under the pressure of these new surroundings, many of the customs and practices of former times fell into disuse, and finally were forgotten altogether. But side by side with this process of decay, there went on a corresponding process of growth. New needs gave rise to new ideas, and these in turn so leavened society that in due time the Maya civilization experienced its *renaissance*. Chichen Itza was the leader in this cultural revival, and it is probable that this site will furnish the best data on the various stages of its development.

¹"The Maya Chronicles," D. G. Brinton, pp. 101, 125, 145.

²For a description of these human sacrifices, see Appendix IV, p. 90.

³These two theaters appear just north of the Castillo in Plate 13. They were probably used for performing certain religious rites, more or less public in character, and were theaters only in that limited sense.

⁴"Relation des Choses de Yucatan," Diego de Landa, pp. 344-6.

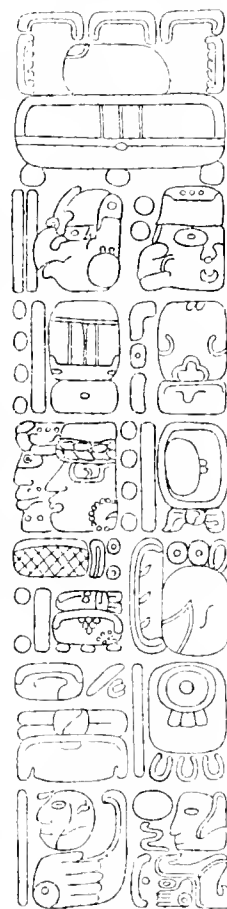
⁵The Maya Renaissance took place during the tenth century, or after the close of the Transitional Period in 960 A. D. See p. 66.

4. *Chichen Itza, the Key to the Correlation of Maya and Christian Chronology.*

Chichen Itza is the only site in the Maya area that is known to have had dates recorded in both the old and the new system of Maya chronology. After the colonization of Yucatan, the system of chronology prevalent in the south, the so-called Initial Series,¹ seems to have fallen into disuse. Indeed, Chichen Itza is the only large site in the north at which it has been found. A drawing of the lintel with this remarkable inscription is given in the accompanying figure. The date here recorded was the day 10.2.9.1.9 9 Muluc 7 Zac of Maya Chronology, or approximately 600 A. D. This date was found inscribed on the lintel of the principal doorway of a small and apparently insignificant temple. (See Plate 4 B.) In place of the method of recording dates by Initial Series, there was developed in Yucatan a more abbreviated method, called the *u kahlay katunob*,² which, though less accurate, was more easily recorded. This latter method, because of its greater simplicity, prevailed until the coming of the Spaniards; and, what is of more importance, it has been accurately correlated with Christian chronology by means of several historical events, dated in terms of both the Maya and the Christian calendars. Since the whole question of the age of the Maya ruins depends upon the proper alinement and correlation of the Initial Series with the *u kahlay katunob*, it follows that Chichen Itza is the only site at which this important question can be studied. In a word, it is the key-site for the study of Maya chronology.

5. *Chichen Itza, the Connecting Link between the Maya and Nahua Civilizations.*

In studying any ancient civilization it is important to establish its cultural affinities; that is, to trace not only its influence upon surrounding cultures, but also the influence of surrounding cultures upon it. Chichen Itza is the only large Maya city that ever came under strong foreign influence. It has been explained that after the defeat of the Itza, about 1200 A. D., their city was probably given over to the Nahua allies of the victorious



Chichen Itza Initial Series.
The date in Maya chronology here recorded corresponds approximately to 600 A. D.

¹The Initial Series method of recording dates has been so named because when it is present it always stands at the beginning of an inscription. It denotes, by means of five time periods, the number of days which have elapsed from the starting-point of Maya chronology to the date recorded. It is interesting to note in this connection that practically all of the southern Maya cities flourished during Cycle 9 of their epoch or about 3,500 years after the starting-point. This long gap between the starting-point and the first recorded dates clearly indicates the hypothetical nature of the starting-point, a parallel case being that of Bishop Usher's date of 4004 B. C. for the creation of the world. The Maya doubtless developed their complex chronological system two or three thousand years after the date which they selected for its starting-point.

²The *u kahlay katunob* (Maya for "Record of the Katuns") is, as its name signifies, a record of the katuns, a Maya time period containing 7,200 days or nearly twenty years (19.71+). In the *u kahlay katunob*, the katuns were regarded as following each other in an endless sequence since the beginning of the record, and events were described as having occurred in such and such a katun.

ruler of Mayapan. Here, then, are sufficient historical grounds to account for the presence of a strong Nahua influence at Chichen Itza. This influence is to be seen most clearly in the so-called Ball-Court group (see Plate 13; H, Plate 14; and Plate 3B). The Ball Court proper is composed of two massive stone walls, each 272 feet long, 34 feet thick, and 27 feet high. These walls are parallel and 119 feet apart. A small temple faces each of the open ends, and a very beautiful temple, "The Temple of the Jaguars" (Plate 5), surmounts the eastern wall at its southern end. The name of this temple is derived from a frieze of stalking jaguars, which forms a conspicuous element of the façade decoration. (For a detail of this motive, see Plate 4A.) An admirable restoration of this temple, by Maudslay, is figured in Plate 6. A comparison of this with the photograph of the same building, illustrated in Plate 5, will show that it is correct, even to the smallest sculptural details. High on the side of each wall of the Ball Court, midway between the ends, there is a large stone ring fastened vertically to the face of the wall, as shown in Plate 3B. The game played in this court was not unlike the modern game of basket-ball, except that in the Maya game the ball was driven through an opening at right angles to, instead of parallel with, the ground.¹ The Ball Court is a purely Nahua importation. The game was originated and developed in the Nahua area, whence it spread to Yucatan at a comparatively late date, probably after 1200 A. D., as we have seen. Indeed there is only one other certain occurrence of a Ball Court in Yucatan, namely, at Uxmal. There are many other features of the architecture and sculpture at Chichen Itza that bespeak Nahua origin, and few of them are found at any other Maya site.² This condition, coupled with the historical event which probably gave rise to it, makes Chichen Itza the site *par excellence* at which to study the cultural affinities between the Maya and the Nahua, the two greatest aboriginal civilizations of North America.

6. *Chichen Itza, the most likely Site at which to find a Maya "Rosetta Stone."*

The point just mentioned has an important corollary, in that the meanings of a large number of the Nahua hieroglyphs, particularly those denoting personal and place names, are known. In the lower chamber of the Temple of the Jaguars there is sculptured a band of warriors, to each of which is attached a hieroglyph drawn in Nahua style. The finding of Maya equivalents of these glyphs would shed much light on the whole question of the undeciphered parts of the Maya hieroglyphic texts. Should there then exist such a thing as a Maya "Rosetta Stone," that is, a bilingual text in Maya and Nahua, Chichen Itza is by far the most likely place to find it.

7. *Chichen Itza, the most notable Historic Site in the Maya Culture Area.*

Chichen Itza has a recorded history extending over a period of eleven centuries, or from 430 A. D. to 1540 A. D.³ This is true of no other Maya city, and indeed of no other aboriginal site in the Western Hemisphere. Recorded history pertaining to pre-Columbian centers of population is

¹See Appendix V, p. 91, for a full description of the game played in this court.

²"A Study of Maya Art, Its Subject Matter and Historical Development," Dr. H. J. Spinden, p. 205.

³See Papers of the School of American Archaeology, Nos. 11 and 18. Sylvanus G. Morley.

exceedingly rare; in fact, this lack constitutes one of the greatest obstacles to the study of American archæology. In Egyptian, Babylonian, Greek, and Roman archæology, history acts as a constant check against speculation. Therefore, when there are definite historical references to a New World site, its archæological importance can not be overestimated.

In summing up the scientific reasons for the selection of Chichen Itza as a base of operations for extended research in the Maya field, it may be said that this site offers far more material for the study of Maya archæology in its various phases than any other center of the civilization.

PRACTICAL REASONS.

1. Accessibility.

Few Maya sites are so accessible from the United States as Chichen Itza. This group of ruins may be reached from New York City, via the New York and Cuba Mail S. S. Co. (*i. e.*, the Ward Line) to Progreso, Yucatan (seven days), and the United Railways of Yucatan, Progreso to Citas, and wagon to the ruins (one day); or from New Orleans, via the Montes Line to Progreso (three days), and Progreso to Citas and the ruins (one day). Excepting Uxmal (also in Yucatan) and Quirigua (Guatemala), the same accessibility can not be claimed for any other large Maya ruin. Indeed, most of the others are very difficult to reach. Palenque, Tikal, Naranjo, Yaxchilan, Piedras Negras, and Seibal, for example, are hidden in the jungles of southern Mexico and northern Guatemala, many days distant from the nearest railroads or steamship lines, and they can be reached only by very difficult travel over foot-trails, often blocked by luxuriant vegetation. The accessibility of the site recommended for the base of operations has a direct bearing not only on the cost of placing an expedition in the field, but also of maintaining it there. A scientific expedition can be sent to Chichen Itza and there maintained more economically than at any other large center of the Maya civilization, with the possible exceptions of Uxmal and Quirigua, above noted.

2. Length of the Field Season.

Northern Yucatan has a shorter rainy season than any other part of the Maya area, and this fact directly influences the length of the field season at Chichen Itza. It was the experience of the Peabody Museum at Copan (Honduras) and of the School of American Archæology at Quirigua (Guatemala) that excavation could not profitably be carried on during the rainy season. The writer was in immediate charge of the excavations at Quirigua in 1912, and he well remembers how torrential were the first rains of the season, early in May, and how suddenly they put an end to the work by flooding the diggings. The rainy season at Chichen Itza commences about the close of May and extends until about the middle of December, leaving at least five months during which it is possible to conduct archæological work without hindrance. At the southern Maya sites, such as Palenque, Tikal, Copan, and Quirigua, the dry season is much shorter. At Quirigua, for example, only the months of February, March, and April are entirely free from rain, and similar conditions prevail at the other southern cities. The field season at Chichen Itza and Uxmal is almost twice as long as at any of the southern sites.

3. *Healthfulness.*

Chichen Itza is by far the most healthful site in the Maya area. It is free from the malarial fevers which render Copan, Quirigua, and Uxmal so perilous. These fevers are so pernicious at Uxmal that it is said no child born at the hacienda has ever lived to adult age.¹ The untimely death of Dr. J. G. Owens, of the Peabody Museum, at Copan in 1893, still lingers in memory as a tragic reminder of the unhealthfulness of that locality. During the three seasons the School of American Archaeology carried on work at Quirigua, every member of the field staff suffered severe attacks of malaria at one time or another. Such conditions are of course inevitable where the rainfall is so excessive and where there is so much standing water in which mosquitoes may propagate. Chichen Itza, with its ideal natural drainage, offers a marked contrast to the above. Mosquitoes are practically unknown there, and with this element of danger absent there is nothing to make the place unhealthful. Since the amount of work which may be accomplished by any scientific expedition depends largely on the health of its field force, the incontestable claims of Chichen Itza in this respect should not be overlooked.

4. *Labor Conditions.*

The success of any large field research depends not a little upon local labor conditions, and in selecting a site for intensive study this fact should be borne in mind. In the south, two American industrial organizations have established themselves during the last decade, and these have materially increased the cost of labor in certain parts of the Maya area: the United Fruit Company, with plantations in eastern Guatemala, Honduras, and British Honduras, and the American Chiclé Company in northern Guatemala, southern Yucatan, and British Honduras. The increasing number of laborers necessary to the activities of these two corporations has steadily raised the price of labor in the regions where they operate. In 1912 the School of American Archaeology was obliged to pay 75 cents (gold) a day for laborers at Quirigua, with every indication that the price would soon advance to one dollar a day. Indeed, the Guatemala Northern Railroad was already paying the latter price for Carib labor.² Another drawback at some of the large southern cities is their remoteness from settlements of any kind, necessitating the importation of outside labor, always a costly and usually an unsatisfactory proceeding. At Chichen Itza efficient Indian laborers may be had at from 37½ cents to 50 cents (gold) a day. These wages are doubtless as low as those prevailing elsewhere in the Maya area, and they are from a third to a half lower than are paid in Guatemala and British Honduras by the two corporations above mentioned. The Maya Indian is intelligent, strong, and willing, and the amount of work he can accomplish in a day is astonishing.³ A working force of 50 to 75 could easily be brought together at Chichen Itza, and for efficiency would equal, if not surpass, a similar force from any other part of the Maya area.

¹ "Archæological Studies among the Ancient Cities of Mexico," W. H. Holmes, Chicago, p. 80.

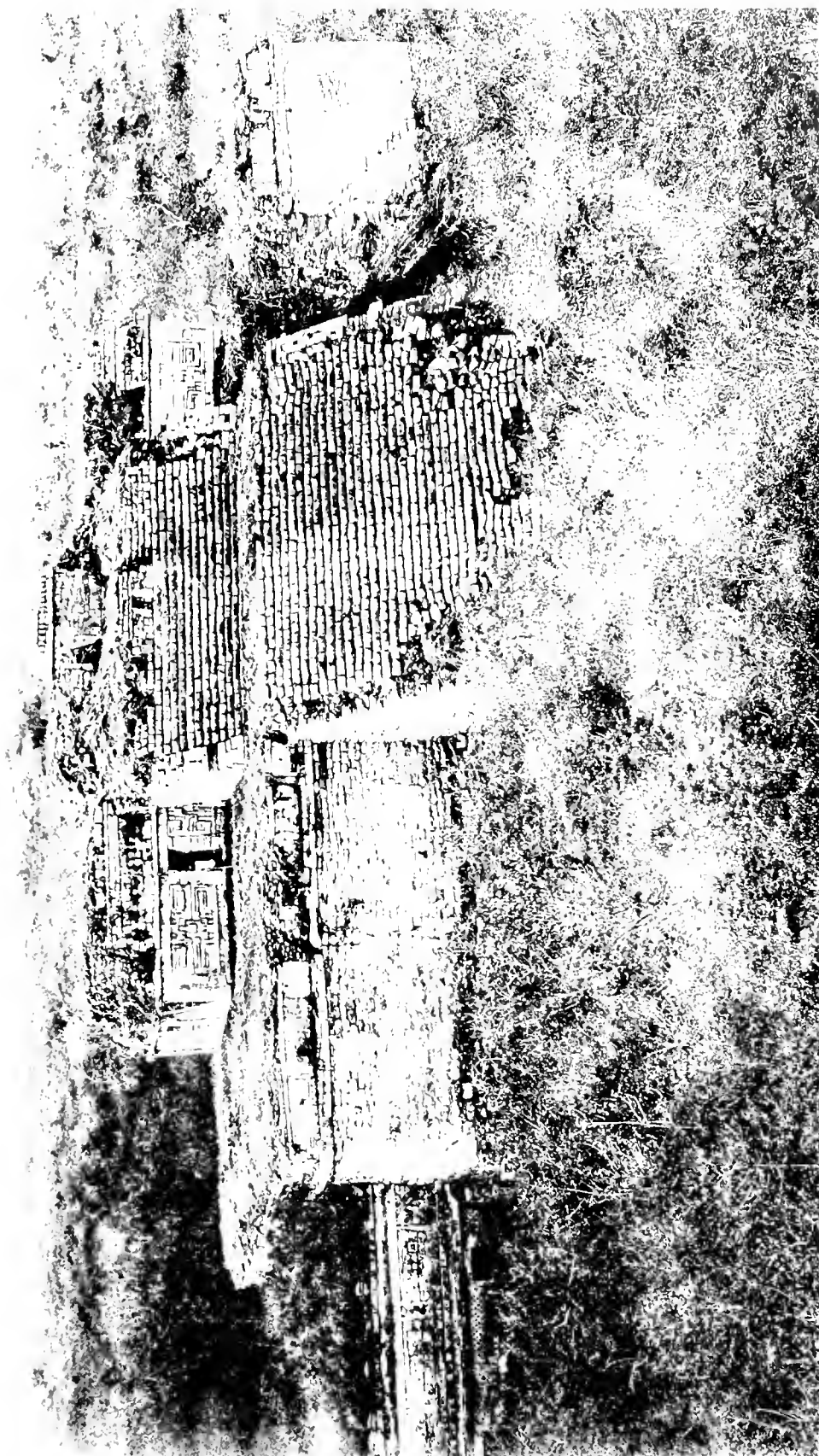
² At Quirigua the native laborer at 75 cents a day was so inefficient as to be actually more costly than the imported Carib laborer at \$1 a day.

³ The writer has had experience with both the Maya and Guatemalteco, and has found the former to be about twice as capable and efficient as the latter.

5. Field Quarters.

Chichen Itza is peculiarly fitted for conducting an extended research in another important respect. There is no other ruin at which an expedition can be so inexpensively and at the same time so comfortably quartered as at Chichen Itza. Indeed all the other large sites, except Uxmal, Quirigua, and Copan, are in a tropical wilderness where it would be necessary to build more or less expensive mosquito-proof field quarters, and even these three groups of ruins have no such facilities as those offered at Chichen Itza. The question of suitable field quarters may seem relatively unimportant, but in inaugurating a work, to extend over a score of years, the comfort of the field corps becomes an item of considerable moment.

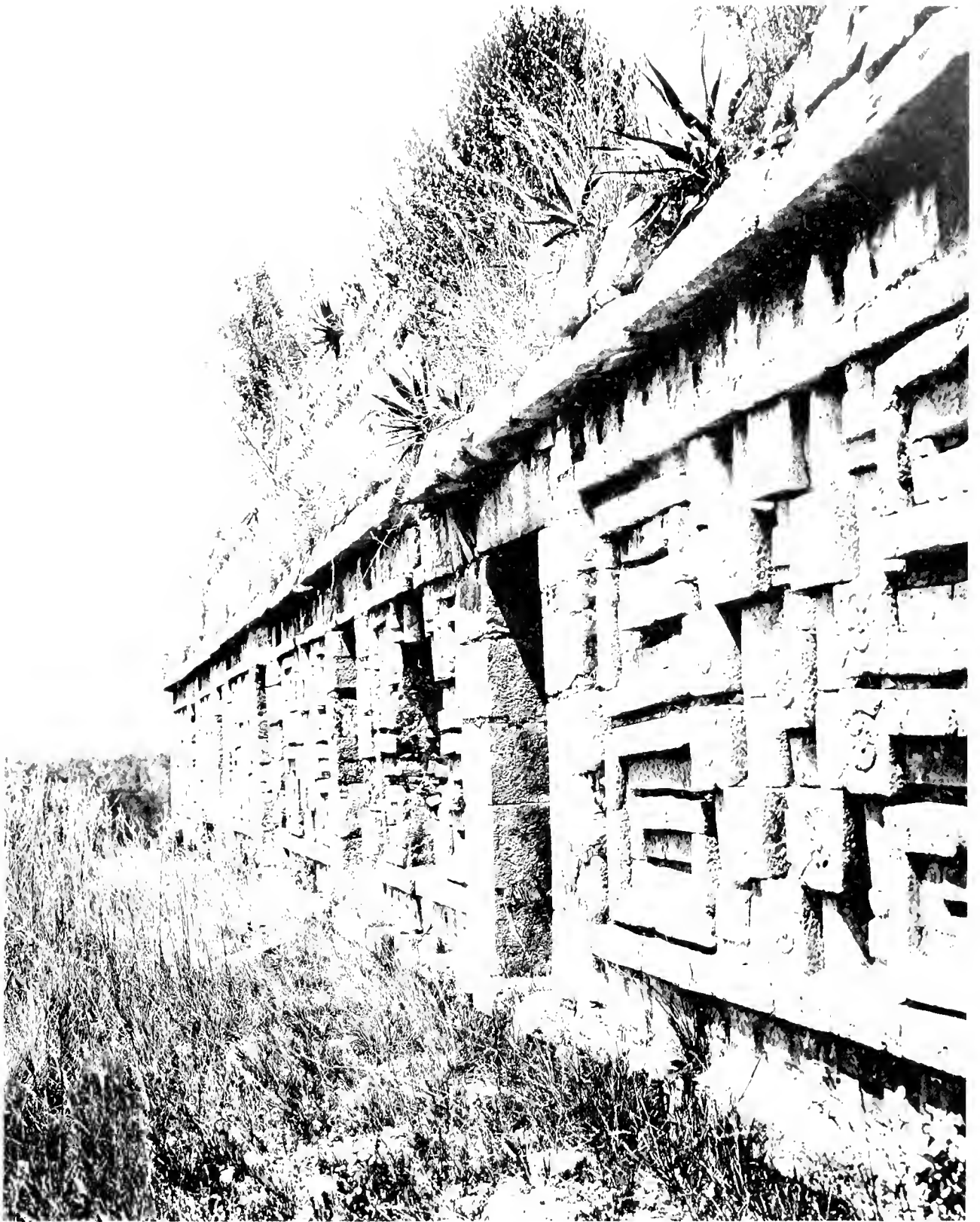
In summing up the practical reasons for conducting archaeological research at Chichen Itza, in preference to every other Maya site, the question resolves itself into one of maximum efficiency at minimum cost. More work can be accomplished at Chichen Itza for a given amount of money than at any other site. Measured by such a standard, only three large Maya sites—Chichen Itza, Uxmal, and Quirigua—are sufficiently near railroad points to be worked at low cost. While cost of operation should not weigh too heavily in selecting a site for intensive study, still a reasonable return of results for the amount expended should be expected. Of the three ruins mentioned, Chichen Itza has by far the most in its favor, and the writer firmly believes that more can be accomplished there than anywhere else in the Maya field, regardless of the amount of the annual appropriation.



The Monjas Group.



The East Wing of the Monjas, said to be one of the finest Facades in the Maya area.



The Main Range of the Monjas, from the South.

NATURE OF THE PROJECT HEREIN PRESENTED.

The project herein submitted to the Carnegie Institution of Washington contemplates an exhaustive study of the ruins of Chichen Itza. This study would depend largely on excavation, but photography, mapping, drawing, and molding should be utilized as well. The ruins at Chichen Itza divide naturally into different groups of more or less closely related structures, each group constituting a well-defined unit of work.¹ Such are: the Ball Court group (Plates 3B, 5, and 14H), the Monjas group (Plates 7, 8, 9, 10, and Plate 14 A, B, C, E, F, and G); the group of the Columns (Plate 14J), etc.

It is recommended to excavate this ancient city, group by group, until it is completely uncovered and the relations of its component parts are disclosed. This method has another obvious advantage: By dividing the whole research into a number of units, it will be possible to issue fairly complete reports covering finished units every four or five years. Such reports would constitute a progressive commentary on the progress of the research. It is confidently expected that important contributions to the study of Maya architecture, sculpture, painting, ceramics, chronology, and hieroglyphic writing will result from these excavations. Indeed, it is practically certain that the knowledge of these subjects will be greatly extended as the work of excavation advances.²

Accompanying the work of excavation, a reasonable amount of repair and restoration should be done. The time has passed when a scientific expedition can rifle a site of its specimens and then retire, leaving weakened buildings to fall under the destructive action of the elements. To-day the best practice in archæological work demands that walls weakened by excavation shall be permanently repaired, and that any really important site must be left in as good condition after excavation as it was found to be before. This obligation is always binding in any tropical environment, but particularly so when the site excavated is one of the largest and most magnificent cities of aboriginal America. At Chichen Itza, moreover, the need of repair work is especially urgent. Scarcely a rainy season passes that some elaborately sculptured facade, loosened by the roots of clinging vegetation, does not fall. The whole front of the Castillo, the chief temple at Chichen Itza (see Plate 3A), is a case in point. The wooden lintels of the main doorway are gradually giving way under the tremendous weight of the superimposed masonry, and unless repairs are speedily made this beautiful example of Maya temple architecture will suffer irreparably. Examples of this kind might be multiplied indefinitely, but the one given above is suffi-

¹For an incomplete list of these groups and the structures composing them, see Appendix III, p. 89.

²A case in point is the Monjas (A, Plate 14 and Plates 7, 8, and 9). This building clearly dates from several different epochs, the addition shown in Plate 8 being one of the latest. Several styles of decoration appear in the four or five different additions, which together make up the building, and excavation would doubtless establish their chronological sequence. This chronological sequence of style, once determined, would serve as a guide in establishing the relative ages of buildings which show only a single style of decoration.

cient to show the need for a reasonable amount of repair work in connection with the excavation of Chichen Itza.

It is recommended to carry out at Chichen Itza a research similar to that of the Smithsonian Institution in connection with the prehistoric remains in our Southwestern States. At Casa Grande, Arizona,¹ and in the Mesa Verde National Park, Colorado,² remarkable and praiseworthy work has been done under the direction of Dr. J. Walter Fewkes and of Mr. J. L. Nusbaum. Plate 11A shows Spruce Tree House, one of the cliff-dwellings of the Mesa Verde National Park before excavation, and Plate 11B the same building after excavation. These views clearly indicate the great improvement which a reasonable amount of repair work makes in the appearance of archæological remains. The only previous attempt of this kind in the Maya field has been the work of the School of American Archæology at Quirigua, Guatemala. Here, in connection with the excavation of the principal building, the walls were relaid in cement and finished with a cement cap to render them impervious to the excessive rainfall of the region.³

In addition to the work of excavation and repair, extensive use should be made of photography. Chichen Itza offers a particularly rich field for the camera, and this phase of the work should receive special attention. It is recommended to make a complete photographic record of the site, showing the progress of the excavations, and other features also: groups of buildings, single buildings, architectural and sculptural details, statuary, hieroglyphic inscriptions, mural paintings, etc. If an archæological expedition is sent to Chichen Itza, its photographic equipment should be of the best, since no branch of the work except excavation will be of greater importance.

The making of maps from accurate surveys is a necessary feature of such research. A map of the entire city, with detailed ground-plans of its individual structures, is a vital part of the general plan of work and will not only shed much light on the question of the assemblage of Maya structures, but also on the much larger question of Maya social organization. The map of Chichen Itza given in Plate 13, although accurate so far as it goes, does not begin to cover the limits of the city, nor even to show all of the buildings, pyramids, platforms, and causeways in the area surveyed.

Molds should be made of the different sculptures recovered, including the statuary, façade decorations, hieroglyphic inscriptions, and the like. The Mexican Government takes the stand that original objects shall not be taken out of the country, and the justice of this position can not be questioned.

¹"Casa Grande Arizona," J. Walter Fewkes, 28th Annual Report, Bureau American Ethnology.

²"Antiquities of the Mesa Verde National Park. Spruce Tree House," J. Walter Fewkes, Bulletin 41, Bureau American Ethnology. "Antiquities of the Mesa Verde National Park-Cliff Palace," J. Walter Fewkes, Bulletin 51, Bureau American Ethnology.

³"Two Seasons' Work in Guatemala," Edgar L. Hewett, Papers of the School of American Archæology, No. 22. "Third Season's Work in Guatemala," Edgar L. Hewett, Papers of the School of American Archæology, No. 23. "Quirigua, an American Town 1400 Years Old," Sylvanus G. Morley, Scientific American, vol. cvii, No. 5, August 3, 1912, p. 96. "Excavations at Quirigua, Guatemala," Sylvanus G. Morley, National Geographic Magazine, March, 1913, p. 339.

After more than a century of robbery and exploitation, both Greece and Italy found it necessary to forbid by law the removal of antiquities from their domains. Mexico, with antiquities relatively as priceless as the Elgin marbles of the Old World, has an equal right of protection against similar exploitation at the hands of unscrupulous collectors. The archæologist of to-day has no more in common with the pot-hunter of forty years ago than modern medical practice has to do with the quackery of the Middle Ages. In the modern science of archæology any specimen is of value only for the story it tells of the people who produced it; and so long as the specimens found are preserved for the use of future students it is immaterial where they are housed.

This question of the ultimate disposition of objects found during the course of excavation has been the rock upon which many an archæological expedition has foundered, not only in Mexico but also in other parts of the world. The stand herein taken, that archæological objects belong to the country in which they are found, rather than to the finders thereof, it is confidently expected, will enlist the active interest and sympathy of the Mexican Government in this particular project. The antiquities at Chichen Itza, whether they be in the form of statuary, reliefs, wood carvings, vases, metal ornaments, or what not, were the product of a Mexican civilization, and for that reason, originals should in all justice remain in the custody of the Mexican nation. For exhibition in museums and for scientific instruction, casts would serve as well.

Concerning the length of time which will be required to complete the work herein outlined, something has already been said. It was suggested (p. 71) that research in the Maya field should not be organized for a period of less than twenty years. The writer has reached this conclusion only after a careful study of the situation. The experience of the Peabody Museum of Harvard University at Copan, Honduras, and of the School of American Archæology at Quirigua, Guatemala, was such as to indicate that at least five years are necessary to complete satisfactorily a single unit of work; and it is only in the aggregate that completed units of work yield reliable scientific data. In observational sciences, final proof of any point rests on the accumulation of sufficient evidence touching thereon—upon corroborative material from a number of sources—hence the desirability of continuing this research long enough to obtain such corroborative data. As stated above, the writer believes this would require a period of not less than twenty years.¹ The problems presented are numerous, and a number of years of sustained effort will be required for their ultimate solution. Moreover, in making this esti-

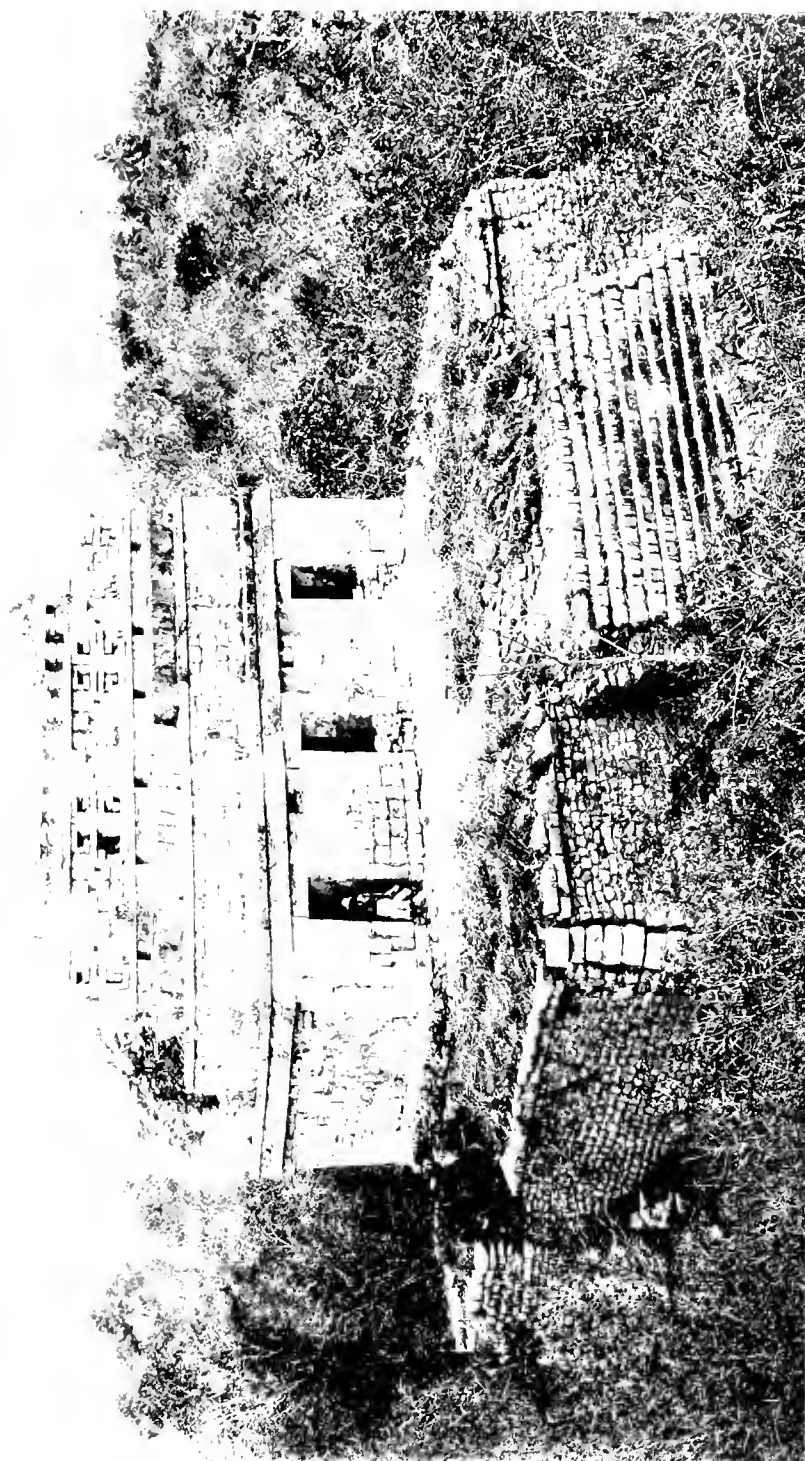
¹While the writer believes at least twenty years would be necessary to complete satisfactorily a definite research in the Maya field, it is not to be supposed, on that account, that intensive investigations for a shorter period would be devoid of important results. It is highly probable that much valuable scientific data would be gathered during a ten years' study of Chichen Itza, though such a period of research would by no means exhaust the possibilities of the site. The point which the writer wishes particularly to emphasize is that, to complete a large and definite research at Chichen Itza and its environs, twenty years at least will be required.

mate, the number of laborers employed in the excavations, as well as the length of the annual field season, are all-important factors. The above estimate of time is based on an annual field season of five months, and on a working force of fifty laborers.

In conclusion the writer believes that, as a result of the work outlined, it will be possible not only to treat this particular site monographically, but also to establish the larger part of the truth concerning the whole Maya civilization.

CONCLUSION.

It is the writer's belief that no other archæological field in the New World offers such rich promise as the region occupied by the ancient Maya, and, at the same time, no equally important field has been so inadequately studied. An attempt has been made to show briefly in the preceding pages that the Maya were the most highly civilized aboriginal people in the two Americas; that their recorded history covered a range exceeding a thousand years before the Spanish Conquest; and, finally, that, notwithstanding its archæological importance, this civilization has been the subject of very little intensive study. The few exceptions noted, especially the work of Mr. A. P. Maudslay and the Peabody Museum of Harvard University, are the more conspicuous because they stand alone. It is generally recognized that the most pressing need of Maya archæology is intensive research at some representative site through a period of years. The site best fitted for such research is, in the writer's opinion, the great ruin group of Chichen Itza in northern Yucatan. The various reasons, practical as well as scientific, which have led him to this conclusion, have been set forth at some length, and they constitute, it is believed, a strong argument for selecting Chichen Itza in preference to any other Maya site. The character this investigation should assume, together with its ultimate scope, has been described in detail with a brief word respecting the nature of the results which may reasonably be expected. Finally, the period of time that would be required to produce results worthy of the endeavors of the Carnegie Institution of Washington has been judged to be about twenty years.

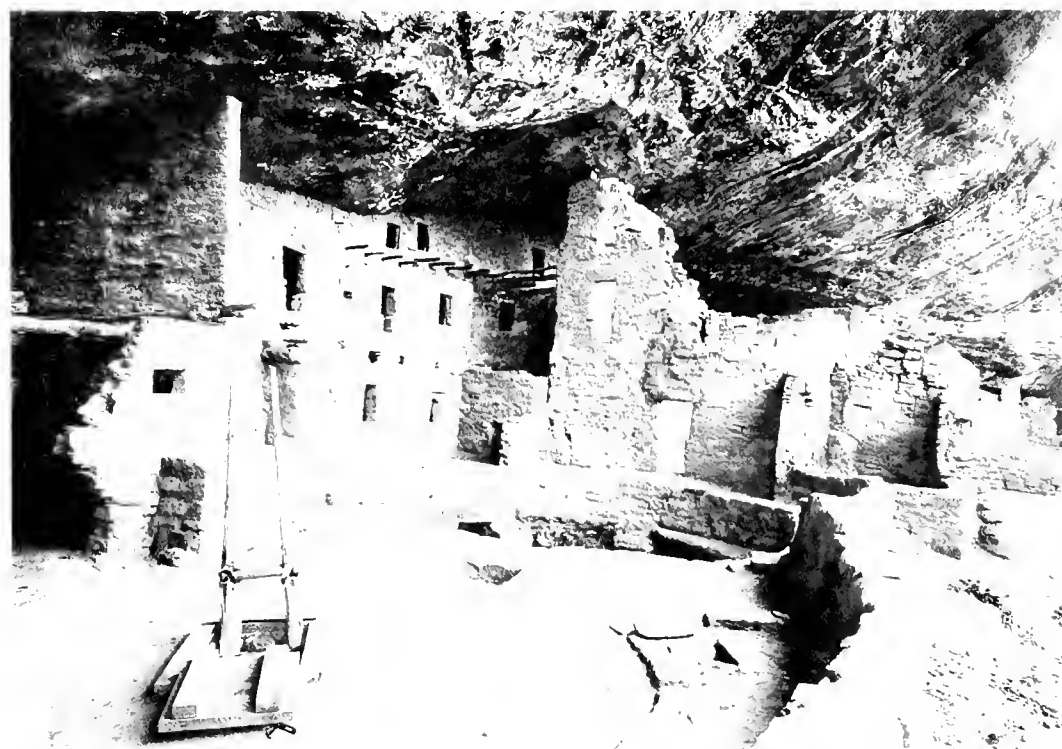


The Casa Colorada, said to be the best-preserved building in the Maya area.

A



B



Spruce Tree House, Mesa Verde National Park, Colorado.

A, before excavation and repair. B, after excavation and repair.

APPENDIX I.

LIST OF BOOKS ON THE MAYA CIVILIZATION.

ARNOLD, C., and F. J. T. FROST.

1909. *The American Egypt: A record of travel in Yucatan.* New York.

BANCROFT, H. H.

1875-1876. *The native races of the Pacific States.* 5 vols. New York and London.

BOWDITCH, C. P.

1901a. *Memoranda on the Maya calendars used in the books of Chilán Balam.* <Am. Anth. (n.s.), III, pp. 129-138.

1901b. *On the age of Maya ruins.* <Am. Anth. (n.s.), III, pp. 697-700.

1901c. *Notes on the report of Teobert Maler, in memoirs of the Peabody Museum, II, No. 1.* Cambridge.

1903a. *Notes on the report of Teobert Maler, in memoirs of the Peabody Museum, II, No. 2.* Cambridge.

1903b. *A suggestive Maya inscription.* Cambridge.

1904. *Mexican and Central American antiquities, calendar systems, and history.* Twenty-four papers by Edward Seler, E. Förstemann, Paul Schellhas, Carl Sapper, and E. P. Dieseldorff. Translated from the German, under supervision of Charles P. Bowditch. <Bull. 28, Bur. Am. Ethnol.

1906. *The temples of the cross, of the foliated cross, and of the sun at Palenque.* Cambridge.

1909. *Dates and numbers in the Dresden Codex.* <Putnam Anniversary Volume, pp. 271-301. New York.

1910. *The numeration, calendar systems, and astronomical knowledge of the Mayas.* Cambridge.

BRETON, A.

1906a. *The wall paintings at Chichén Itzá.* <Internat. Cong. of Americanists, 15th sess., Québec, pp. 165-169.

BRINTON, D. G.

1882a. *American hero myths. A study in the native religions of the western continent.* Philadelphia.

1882b. *The Maya chronicles.* Philadelphia. <No. 1 of Brinton's Library of Aboriginal American Literature.)

1882c. *The graphic system and ancient records of the Mayas.* <U. S. Geog. and Geol. Survey of the Rocky Mountain Region. Cont. to Am. Ethnol., v, No. 3, pp. xvii-xxxvii.

1882d. *The books of Chilán Balam, the prophetic and historic records of the Mayas of Yucatan.* <Penn. Monthly, xiii, pp. 261-275.

1885a. *The annals of the Cakchiquels. The original text with a translation, notes and introduction.* Philadelphia. <No. 6 of Brinton's Library of Aboriginal American Literature.

1890. *Essays of an Americanist.* Philadelphia.

1894b. *A primer of Mayan hieroglyphics.* <Pub. Univ. of Penn., Ser. in Philol., Lit. and Arch., III, No. 2.

CATHERWOOD, F.

1844. *Views of ancient monuments in Central America, Chiapas and Yucatan.* Folio. London.

CASARES, D.

1905. *A notice of Yucatan with some remarks on its water supply.* <Proc. Am. Antiq. Soc., xvii, pp. 207-230.

CHARNAY, D.

1887a. *The ancient cities of the New World.* Translation by J. Gonino and H. S. Conant. London.

FÖRSTEMANN, E.

1906. *Commentary of the Maya manuscript in the Royal Public Library of Dresden.* <Pap. Peabody Mus., IV, No. 2, pp. 48-266.

GANN, T.

1897-1898. *Mounds in northern Honduras.* <19th Rep. Bur. Am. Ethnol., pt. 2, pp. 661-692.

GATES, W. E.

1910. *Commentary upon the Maya-Tzental Pérez Codex, with a concluding note upon the linguistic problem of the Maya glyphs.* <Pap. Peabody Mus., VI, No. 1, pp. 5-64.

GOODMAN, J. T.

1897. *The archaic Maya inscriptions.* <Part XVIII of Biologia Centrali-Americana, Archaeology, London. See Maudslayi, 1889-1902.

GORDON, G. B.

1896. *Prehistoric ruins of Copán, Honduras. A preliminary report of the explorations by the Museum, 1891-1895.* <Mem. Peabody Mus., I, No. 1, pp. 1-48.

1898a. *Researches in the Uloa Valley, Honduras. Report on explorations by the Museum, 1896-1897.* <Mem. Peabody Mus., I, No. 4, pp. 1-44.

GORDON, G. B.—Continued.

- 1898b. Caverns of Copan, Honduras. Report on Explorations by the Museum, 1896-1897. <Mem. Peabody Mus., I, No. 5, pp. 1-12.
 1902a. The hieroglyphic stairway ruins of Copan. Report on explorations by the Museum. <Mem. Peabody Mus., I, No. 6, pp. 1-38.
 1913. The Book of Chilán Balam of Chumayel. <University of Pennsylvania, The Museum, Anthropological Publications, vol. v. Philadelphia.

HEWETT, E. L.

1911. Two seasons' work in Guatemala. <Bulletin Archaeological Institute of America, vol. II, pp. 117-134.
 1912. The third season's work in Guatemala. <Ibid. vol. III, pp. 163-171.

HOLMES, W. H.

- 1895-1897. Archaeological studies among the ancient cities of Mexico. <Field Columbian Museum, Anth. ser., I, pts. 1 and 2.

LANDA, D. DE

1864. Relation des choses de Yucatan. Paris.

MALER, T.

1901. Researches in the central portion of the Usumatsintla Valley. <Mem. Peabody Mus., II, No. 1, pp. 9-75.
 1903. Researches in the central portion of the Usumatsintla Valley. Part Second. <Mem. Peabody Mus., II, No. 2, pp. 83-208.
 1908a. Explorations of the upper Usumatsintla and adjacent region. <Mem. Peabody Mus., IV, No. 1, pp. 1-51.
 1908b. Explorations in the Department of Peten, Guatemala, and adjacent region. <Mem. Peabody Mus., IV, No. 2, pp. 55-127.
 1910. Explorations in the Department of Peten, Guatemala, and adjacent regions, continued. <Mem. Peabody Mus., IV, No. 3, pp. 131-170.
 1911. Explorations in the Department of Peten, Guatemala: Tikal. <Mem. Peabody Mus., V, No. 1, pp. 3-91.

MARTINEZ, J.

1910. Los grandes ciclos de la historia Maya segun el Manuserito de Chumayel. Merida.
 1912. La Creacion del Mundo segun los Mayas. Paginas ineditas del M. S. de Chumayel. Merida.

MAUDSLAY, A. P.

- 1889-1902. Biologia Centrali-Americana, or contributions to the knowledge of the flora and fauna of Mexico and Central America. <Archæology, 4 vols. of text and plates. London.

MAUDSLAY, A. C. and A. P.

1899. A glimpse of Guatemala and some notes on the ancient monuments of Central America. London.

MORLEY, S. G.

1909. The inscriptions at Naranjo, northern Guatemala. <Am. Anth. (n. s.), XI, pp. 543-562; also Papers of School Am. Arch., No. 9.
 1910a. A group of related structures at Uxmal, Mexico. <Am. Jour. Arch., 2d ser., XIV, pp. 1-18; also Papers of School Am. Arch., No. 6.
 1910b. Correlation of Maya and Christian chronology. <Am. Jour. Arch., 2d ser., XIV, pp. 193-204; also Papers of School Am. Arch., No. 11.
 1911. The historical value of the Books of Chilán Balam. <Am. Jour. Arch., 2d ser., XV, pp. 195-214; also Papers of School Am. Arch., No. 18.
 1911a. Ancient cities and temples of the New World, Chichen Itza. <Bulletin of the Pan-American Union, vol. XXXII, No. 3, pp. 453-468.
 1911b. Ancient temples and cities of the New World, Uxmal, the City of the Xius. <Bulletin of the Pan-American Union, vol. XXXII, No. 4, pp. 627-642.
 1911c. Ancient temples and cities of the New World: Copan, the Mother City of the Mayas. <Bulletin of the Pan-American Union, vol. XXXII, No. 5, pp. 863-879.
 1912. Quirigua, an American town 1,400 years old. <Scientific American, CVII, August 3, pp. 96-97, 105.
 1913. Excavations at Quirigua, Guatemala. <The National Geographic Magazine, vol. XXIV, No. 3, pp. 339-361.
 1914 (?) An introduction to the study of the Maya Hieroglyphics. In the course of publication by the Bureau of American Ethnology.

RIO, ANTONIO DEL.

1822. Description of the ruins of an ancient city, discovered near Palenque, in the kingdom of Guatemala in Central America. London.

SCHELLHAS, P.

1904. Representation of deities of the Maya manuscripts. 2d edition revised. Translated by Miss Selma Wesselhoeft and Miss A. M. Parker. <Pap. Peabody Mus., iv, No. 1, pp. 7-47.

SELER, E.

1908. Die Ruinen von Chich'en Itza in Yucatan. <Internat. Cong. of Americanists, 16th sess., Vienna, pp. 151-239.

SPINDEN, H. J.

1913. A study of Maya art, its subject-matter and historical development. <Mem. Peabody Mus. vol. vi.

STEPHENS, J. L.

1841. Incidents of travel in Central America, Chiapas and Yucatan. 2 vols. New York.
1843. Incidents of travel in Yucatan. 2 vols. New York.

THOMAS, C.

1882. A study of the Manuscript Troano. <U.S. Geo. and Geol. Survey of the Rocky Mountain Region. Cont. to Am. Ethnol., v, pp. 1-224.
1894-1895. Day symbols of the Maya year. <16th Ann. Rep. Bur. Am. Ethnol., pp. 205-265.
1897-1898. Mayan calendar systems. <19th Ann. Rep. Bur. Am. Ethnol., pp. 693-819.
1900-1901. Mayan calendar systems. II. <22d Ann. Rep. Bur. Am. Ethnol., pp. 203-303.

THOMPSON, E. H.

- 1897a. Cave of Loltun, Yucatan. Report of explorations by the Museum, 1888-1889 and 1890-1891. <Mem. Peabody Mus., i, No. 2, pp. 1-24.
1897b. The chultunes of Labna, Yucatan. Report of explorations by the Museum, 1888-1889, and 1890-1891. <Mem. Peabody Mus., i, No. 3, pp. 1-20.
1898. Ruins of Xkichmook, Yucatan. <Field Columbian Museum Anth., ser. II, pp. 211-223.
1904. Archaeological researches in Yucatan. Report of explorations for the Museum. <Mem. Peabody Mus., III, No. 1, pp. 3-20.

TOZZER, A. M.

1907. A comparative study of the Mayas and Lacandones. New York.
1910. (With G. M. Allen.) Animal figures in the Maya Codices. <Pap. Peabody Mus., iv, No. 3.)
1911. Preliminary study of the ruins of Tikal. <Mem. Peabody Mus., v, No. 2.

VALENTINE, P. J. J.

- 1879b. The katunes of Maya history. <Proc. Am. Antiq. Soc., Oct., pp. 71-117.

WALDECK, J. F. DE.

1866. Monuments anciens du Mexique. Palenque et autres ruines de l'ancienne civilisation du Mexique etc. (Introduction by Brasseur de Bourbourg.) Folio. Paris.

APPENDIX II.

LIST OF WRITINGS RELATING TO THE ARCHÆOLOGICAL SITES MENTIONED
IN THIS REPORT.

CHICHEN ITZA.

STEPHENS, JOHN L.

1843. Incidents of travel in Yucatan. 2 vols. New York. <Vol. II, chapters xvi and xvii.

MAUDSLAY, ALFRED P.

1889-1902. *Biologia Centrali Americana*. Archaeology. London. <Vol. III, text pp. 1-43, plates 1-66.

CHARNAY, DESIRÉ.

1888. The ancient cities of the New World. Chapter XVIII. New York.

HOLMES, W. H.

1895-1897. Archaeological studies among the ancient cities of Mexico. Chicago. <Field Columbian Museum, Anthropological Series, vol. I, No. 1, pp. 101-137.

BANCROFT, H. H.

1883. The native races of the Pacific States. San Francisco. <Antiquities, vol. IV, pp. 220-236.

ARNOLD, C., and F. J. T. FROST.

1909. The American Egypt. New York. Chapter VI.

MORLEY, SYLVANUS G.

1911a. Ancient cities and temples of the New World: Chichen Itza. <Bulletin of the Pan-American Union, vol. XXXII, No. 3, pp. 453-468.

Two early (sixteenth century) descriptions of Chichen Itza are the following:

1900. "Coleccion de Documentos ineditos relativos al descubrimiento conquista y organizacion de las antiguas posesiones Españolas de Ultramar." *Relacion de la Ciudad de Valladolid*. Madrid. <Vol. XIII, pp. 3-40. A part of this account is given in Appendix IV, p. 90.1864. *Relation des Choses de Yucatan*. Diego de Landa. Paris. <Pages 340-346.

COPAN.

STEPHENS, JOHN L.

1841. Incidents of travel in Central America, Chiapas and Yucatan. New York. <Vol. I, chapters V, VI, and VII.

MAUDSLAY, ALFRED P.

1889-1902. *Biologia Centrali Americana*. Archaeology. London. <Vol. I, text pp. 1-69, plates 1-119.

BANCROFT, H. H.

1883. The native races of the Pacific States. San Francisco. <Antiquities, vol. IV, pp. 77-105.

GORDON, G. B.

1896. Prehistoric ruins of Copan, Honduras. <Mem. Peabody Mus. of American Arch. and Ethnol., Harvard Univ., vol. I, No. 1. Cambridge.

1898b. Caverns at Copan, Honduras. <Mem. Peabody Mus. of American Arch. and Ethnol., Harvard Univ., vol. I, No. 5. Cambridge.

1902a. The hieroglyphic stairway ruins of Copan. Cambridge. <Mem. Peabody Mus. of American Arch. and Ethnol., Harvard Univ., vol. I, No. 6.)

MORLEY, SYLVANUS G.

1911c. Ancient cities and temples of the New World: Copan, the mother city of the Mayas. <Bulletin of the Pan-American Union, vol. XXXII, No. 5, pp. 863-879.

For an early (1576) description of Copan, see a letter from the Licenciado Diego de Palacio to Philip II of Spain. An English translation of this is given in Mr. Maudslay's text above quoted. See pp. 5-7.

LABNA.

STEPHENS, JOHN L.

1843. Incidents of travel in Yucatan. New York. <Vol. II, chapter III.

THOMPSON, E. H.

1897b. The Chultunes of Labna, Yucatan. Cambridge. <Mem. Peabody Mus. of American Arch. and Ethnol., Harvard Univ., vol. I, No. 3.

ARNOLD, C., and F. J. T. FROST.

The American Egypt. <Pages 193-196.

MAYAPAN.

STEPHENS, JOHN L.

1843. Incidents of travel in Yucatan. New York. <Vol. I, pp. 130-141.

NARANJO.

MALER, TEOBERT.

- 1908b. Explorations in the Department of Peten, Guatemala, and adjacent regions. Cambridge. <Mem. Peabody Mus., American Arch. and Ethnol., Harvard Univ., vol. iv, No. 2, chapter xxiii, pp. 80-127, plates 20-44.

PALENQUE.

STEPHENS, JOHN L.

1841. Incidents of travel in Central America, Chiapas and Yucatan. New York. <Vol. ii, chapters xvii, xviii, xix, and xx.

MAUDSLAY, ALFRED P.

- 1889-1902. *Biologia Centrali Americana*. Archaeology. London. <Vol. iv, text pp. 1-38, plates 1-93.

CHARNAY, DESIRÉ.

1888. The ancient cities of the New World. New York. <Chapters xiii and xiv.

HOLMES, W. H.

- 1895-1897. Archaeological studies among the ancient cities of Mexico. Chicago. <Field Columbian Museum, Anthropological Series, vol. i, No. 1, part 2, pp. 151-209.

BANCROFT, H. H.

1883. The native races of the Pacific States. San Francisco. <Vol. iv, chapter vi.

WALDECK, J. F. DE.

1866. "Monuments anciens de Mexique, Palenque et autres ruines de l'ancienne civilisation du Mexique." Plates. Paris.

RIO, A. DEL.

1822. For an early (1786) description of the ruins of Palenque, see "Description of the ruins of an ancient city discovered near Palenque." London.

PIEDRAS NEGRAS.

MALER, TEOBERT.

1901. Researches in the central portion of the Usamasintla Valley. Cambridge. <Mem. Peabody Mus., American Arch. and Ethnol., Harvard Univ., vol. ii, No. 1, chapter vi, pp. 40-75, plates vii-xxxiii.

QUIRIGUA.

STEPHENS, JOHN L.

1841. Incidents of travel in Central America, Chiapas, and Yucatan. New York. <Vol. ii, chapter vii.

MAUDSLAY, ALFRED P.

- 1889-1902. *Biologia Centrali Americana*. Archaeology. London. <Vol. ii, text pp. 1-19, plates 1-66.

HEWETT, EDGAR L.

1911. Two seasons' work in Guatemala. <Bulletin Arch. Institute of America, vol. ii, pp. 117-134.
1912. The third season's work in Guatemala. <Bulletin Arch. Institute of America, vol. iii, pp. 163-171.

MORLEY, SYLVANUS G.

1912. Quirigua, an American town 1400 years old. <The Scientific American, vol. cvii, No. 5, p. 96.
1913. Excavations at Quirigua, Guatemala. <The National Geographic Magazine, vol. xxiv, No. 3, pp. 339-361.

SEIBAL.

MALER, TEOBERT.

- 1908a. Exploration of the Upper Usamatsintla and adjacent region. Cambridge. <Mem. Peabody Mus., American Arch. and Ethnol., Harvard Univ., vol. iv, No. 1, chapter xvii, pp. 10-28, plates 3-10.

TIKAL.

MAUDSLAY, ALFRED P.

- 1889-1902. *Biologia Centrali Americana*. London. Vol. iii, text <pp. 44-50, plates 67-82.

CHARNAY, DESIRÉ.

1888. The ancient cities of the New World. New York. <Pages 464-473.

BANCROFT, H. H.

1883. The native races of the Pacific States. San Francisco. <Antiquities, vol. iv, pp. 135-138

TOZZER, ALFRED M.

1911. Preliminary study of the ruins of Tikal, Guatemala. Cambridge. <Mem. Peabody Mus. of American Arch. and Ethnol., Harvard Univ., vol. v, Nos. 1 and 2.

UXMAL.

STEPHENS, JOHN L.

1841. Incidents of travel in Central America, Chiapas, and Yucatan. New York. <Vol. II, chapters XXIV and XXV.

1843. Incidents of travel in Yucatan. New York. <Vol. I, chapters VII, VIII, X, XI, and XIV.

HOLMES, W. H.

1895-1897. Archaeological studies among the ancient cities of Mexico. Chicago. <Field Columbian Museum, Anthropological Series, vol. I, No. 1, part 1, pp. 80-96.

CHARNAY, DESIRÉ.

1888. The ancient cities of the New World. New York. <Chapter XX.

MORLEY, SYLVANUS G.

1910a. A group of related structures at Uxmal, Yucatan. <Papers of the School of American Archaeology, No. 6.

1911b. Ancient temples and cities of the New World: Uxmal, the city of the Xius. <Bulletin of the Pan-American Union, vol. XXXII, No. 4, pp. 627-642.

For a very early (1586) description of the ruins of Uxmal see—

SPINDEN, H. J.

1913. A Study of Maya Art: Its subject-matter and historical development. Cambridge. <Mem. Peabody Mus. of American Arch. and Ethnol., Harvard Univ., vol. VI, pp. 5-8. This description was written by one of the secretaries of Padre Alonso Ponce, a Franciscan delegate who visited the ruins of Uxmal in 1586 on a tour of inspection of the provinces of New Spain. An English translation of this account appears in the work above cited.

YAXCHILAN.

MAUDSLAY, ALFRED P.

1889-1902. Biologia Centrali Americana. London. <Vol. II, text pp. 40-47, plates 76-98.

MALER, TEOBERT.

1903. Researches in the Central part of the Usumatsintla Valley. <Mem. Peabody Mus., American Arch. and Ethnol., Harvard Univ., vol. II, No. 2, chapter XIII and plates 39-80.

CHARNAY, DESIRÉ.

1888. The ancient cities of the New World. New York. <Chapter XXII.

APPENDIX III.

INCOMPLETE LIST OF GROUPS OF RELATED STRUCTURES AT
CHICHEN ITZA, YUCATAN.

1. The Monjas Group.
The Main Range.
The East Wing.
The L-shaped Annex.
The Southeast Temple.
The Iglesia (church).
The Caracol (snail, winding stairway). This structure has an interior spiral stairway.
The Casa Colorado.
A small nameless temple, and about a dozen other structures now in ruin.
2. The Akatzib (writing in the dark), named after a hieroglyphic inscription in a dark, interior chamber.
3. The Group of the High Priest's Grave.
The Temple of the High Priest's Grave.
The Temple of the Atlantes and four or five other structures now in ruin.
4. The Castillo Group.
The Castillo.
The Temple of the Cones.
The Sacred Way leading to "The Cenote of Sacrifice."
The small temple on the edge of "The Cenote of Sacrifice."
5. The Ball-Court Group.
The Ball Court.
The North Temple.
The South Temple.
The Temple of the Jaguars.
The Lower Chamber of the Temple of the Jaguars, and five or six other structures now in ruin.
6. The Group of the Columns.
The Temple of the Tables.
The Temple of Chac Mool.¹
The Small Ball Court No. 1. (?)²
The Small Ball Court No. 2. (?).
The Peristyle (this imposing structure surrounds a court of over five acres).
The Temple of the Little Tables.
The Temple of the Stairway.
The Sunken Court, and many smaller peristyles, temples, and pyramids. This group covers more ground and contains more structures than any other in the city.
7. The North Group (a mile north of "The Cenote of Sacrifice").
The Temple of the Butterfly.
The Temple of the Jaguars No. 2.
The Causeway leading to "The Cenote of Sacrifice," and several other structures now in ruin.
8. The Group of the Temple of the Initial Series (Old Chichen Itza).
The Temple of the Initial Series.
The Temple of the Phalli.
The Temple of the Owl and a dozen other structures now in ruin.

¹This name has been applied to a class of sculptures at Chichen Itza, which represents a human being, partially reclining, lying on its back; the knees and elbows are raised, and the feet drawn in; the head is elevated and turned to one side; the hands hold a bowl for burning incense. One of these Chac Mools was found in front of this temple, hence its name: "The Temple of Chac Mool."

²The identification of these two structures as Ball Courts is not certain, though probably correct. Excavation would doubtless clear up this point.

9. The South Group (a mile south of the Monjas. Old Chichen Itza).
The Temple of the Hieroglyphic Lintel.
Nameless temple.
Nameless temple.
10. The West Group (about a mile west of the Monjas. Old Chichen Itza).
This group contains a number of structures in an advanced state of ruin, which probably date from the earliest occupancy of the city.
In addition to the foregoing, there are a number of other groups of related structures at Chichen Itza, too ill defined to describe here, some of which are as much as six miles distant from the center of the city.

APPENDIX IV.

DESCRIPTION OF HUMAN SACRIFICES AT "THE CENOTE OF SACRIFICE," CHICHEN ITZA, YUCATAN.

The following description of human sacrifices at "The Cenote of Sacrifice" is taken from a letter written by three of the original *conquistadores* of Yucatan, and is part of a general description of Chichen Itza. This letter was written in response to a general circular sent out by the Council of the Indies in 1579, asking for information about the discovery and conquest of the colonial possessions, and about the native inhabitants thereof.

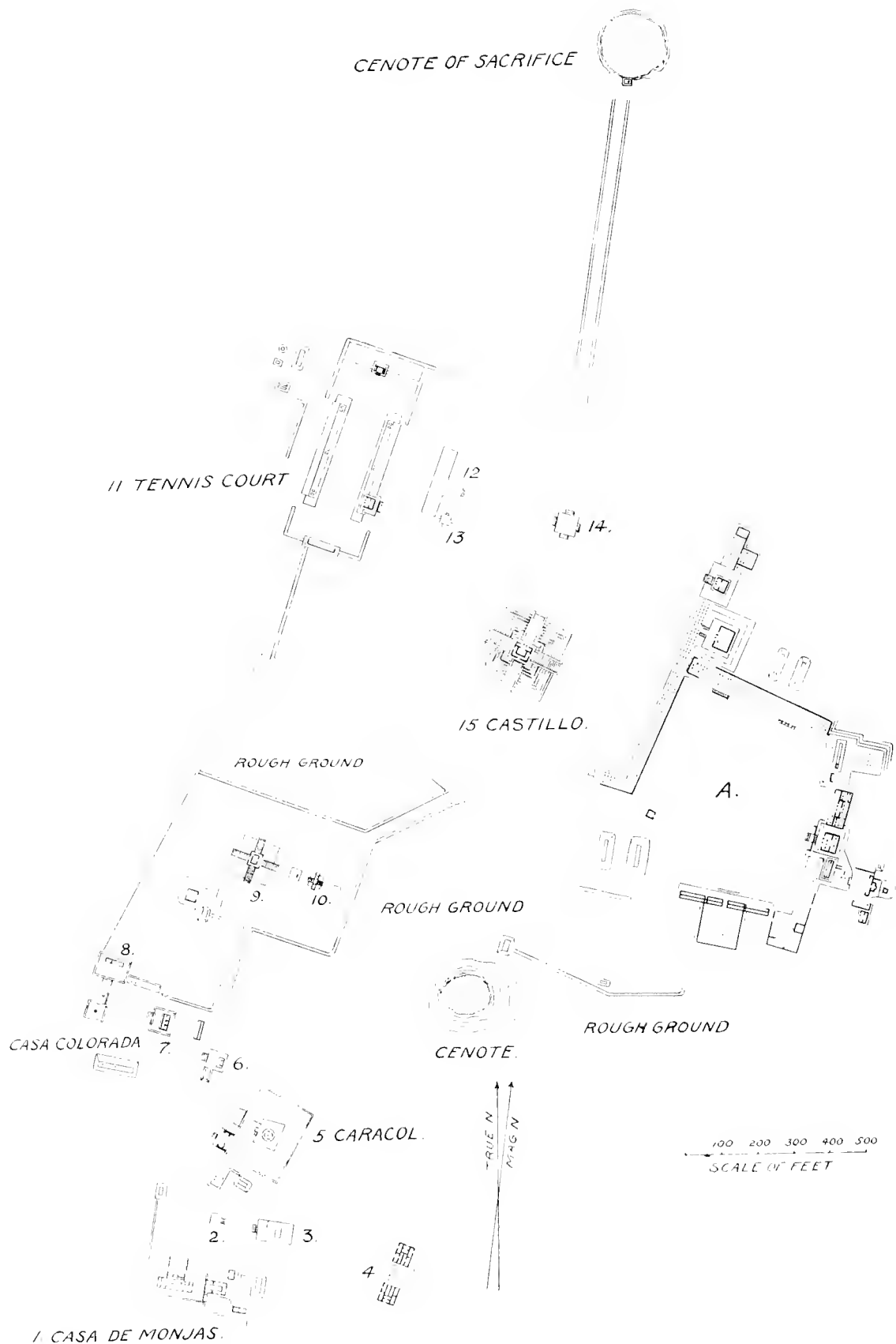
"At this Cenote, the lords and chiefs of all the provinces of Valladolid observed this custom. After having fasted for sixty days without raising their eyes during that time even to look at their wives, nor at those who brought them food, they came to the mouth of this Cenote and, at the break of day, they threw into it some Indian women, some belonging to each of the lords, and they told the women that they should beg for a good year in all those things which they thought fit, and thus they cast them in unbound, but as they were thrown headlong, they fell into the water, giving a great blow on it; and exactly at midday she who was able to come out cried out loud that they should throw her a rope to drag her out with, and she arrived at the top half dead, and they made great fires round her and incensed her with Copal, and when she came to herself she said that below there were many of her nation, both men and women, who received her, and that raising her head to look at some of them, they gave her heavy blows on the neck, making her put her head down, which was all under water, in which she fancied were many hollows and deeps; and in answer to the questions which the Indian girl put to them, they replied to her whether it should be a good or bad year, and whether the devil was angry with any of the lords who had cast in the Indian girls, but these lords already knew that if a girl did not beg to be taken out at midday, it was because the devil was angry with them, and she never came out again. Then, seeing that she did not come out, all the followers of that lord and the lord himself threw great stones into the water, and with loud cries fled from the place."

APPENDIX V.

DESCRIPTION OF THE AZTEC BALL GAME "TLACHTLI."

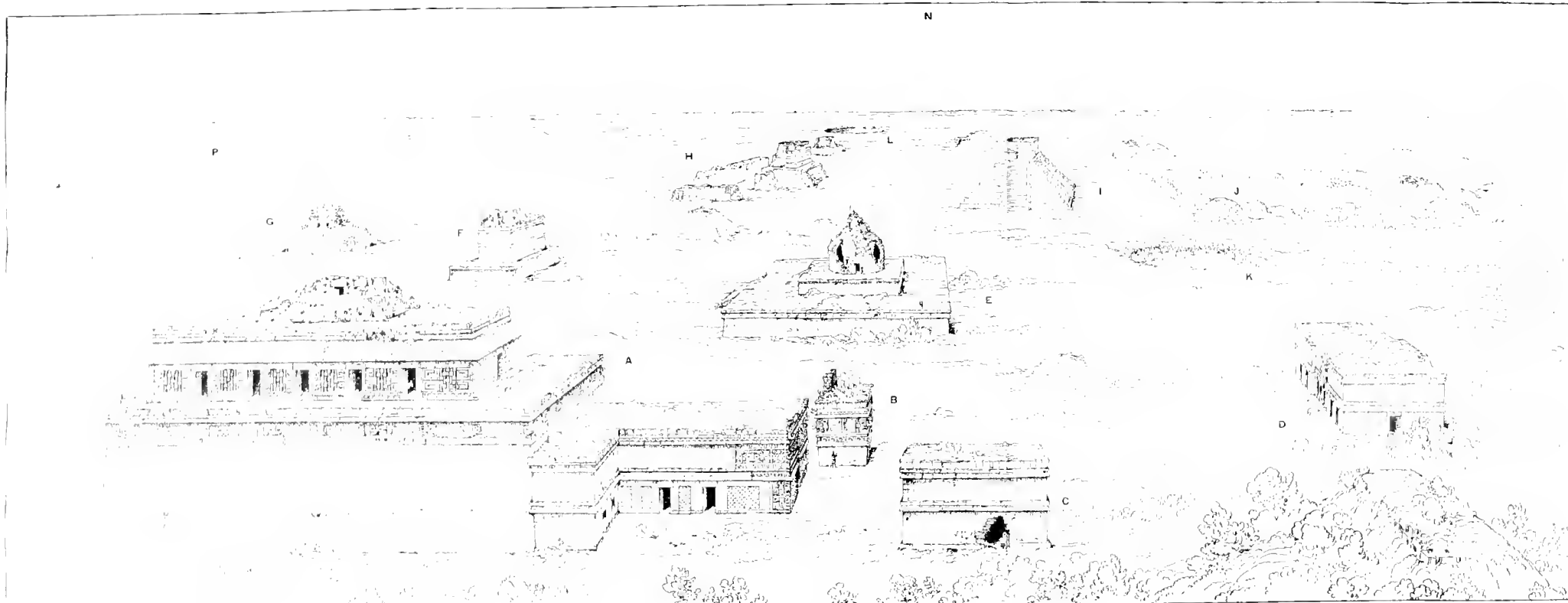
The following description of the Aztec ball game, "tlachtli," is taken from a general account of the diversions of Montezuma and his court, by Antonio de Herrera, in "Historia general de los hechos de los Castellanos en las islas i tierra firme del Mar oceano" (5 vols. Madrid, 1726-1730). As the Ball Court at Chichen Itza is known to have been of Nahuatl origin, it is probable that this same game, or at least one very similar, was played there.

"The king took much delight in seeing sport at ball, which the Spaniards have since prohibited, because of the mischief that often happened at it; and was by them called *tlachtli*, being like our tennis. The ball was made of the gum of a tree that grows in hot countries, which, having holes made in it, distils great white drops that soon harden, and, being worked and molded together, turn as black as pitch. The balls made thereof, though hard and heavy to the hand, did bound and fly as well as our foot-balls, there being no need to blow them; nor did they use chaces, but vied to drive the adverse party, that is, to hit the wall, the others were to make good, or strike it over. They struck it with any part of their body, as it happened, as they could most conveniently; and sometimes he lost that touched it with any other part but his hip, which was looked upon among them as the greatest dexterity; and to this effect, that the ball might rebound the better, they fastened a piece of stiff leather on their hips. They might strike it every time it rebounded, which it would do several times, one after another, insomuch that it looked as if it had been alive. They played in parties, so many on a side, for a load of mantles, or what the gamesters could afford, at so many scores. They also played for gold and feather-work, and sometimes played themselves away, as has been said before. The place where they played was a ground room, long, narrow, and high, but wider above than below, and higher on the sides than at the ends, and they kept it very well plastered and smooth, both the walls and the floor. On the side walls they fixed certain stones, like those of a mill, with a hole quite through the middle, just as big as the ball, and he that could strike it through there won the game; and in token of its being an extraordinary success, which rarely happened, he had a right to the cloaks of all the lookers-on, by ancient custom and law amongst gamesters; and it was very pleasant to see, that as soon as ever the ball was in the hole, the standers-by took to their heels, running away with all their might to save their cloaks, laughing and rejoicing, others scouring after them to secure their cloaks for the winner, who was obliged to offer some sacrifice to the idol of the tennis-court, and the stone through whose hole the ball had passed. Every tennis-court was a temple, having two idols, the one of gaming, and the other of the ball. On a lucky day, at midnight, they performed certain ceremonies and enchantments on the two lower walls and on the midst of the floor, singing certain songs, or ballads; after which a priest of the great temple went with some of their religious men to bless it; he uttered some words, threw the ball about the tennis-court four times, and then it was consecrated, and might be played in, but not before. The owner of the tennis-court, who was always a lord, never played without making some offering and performing certain ceremonies to the idol of gaming, which shows how superstitious they were, since they had such regard to their idols, even in their diversions. Montezuma carried the Spaniards to this sport, and was well pleased to see them play at it, as also at cards and dice."



X

Map of the ruins of Chichen Itza, northern Yucatan, after Maudslay. The point of view of the panorama shown in Plate 14 is at "X."



Panorama of the ruins of Chichen Itza, looking toward the north. After Holmes.

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